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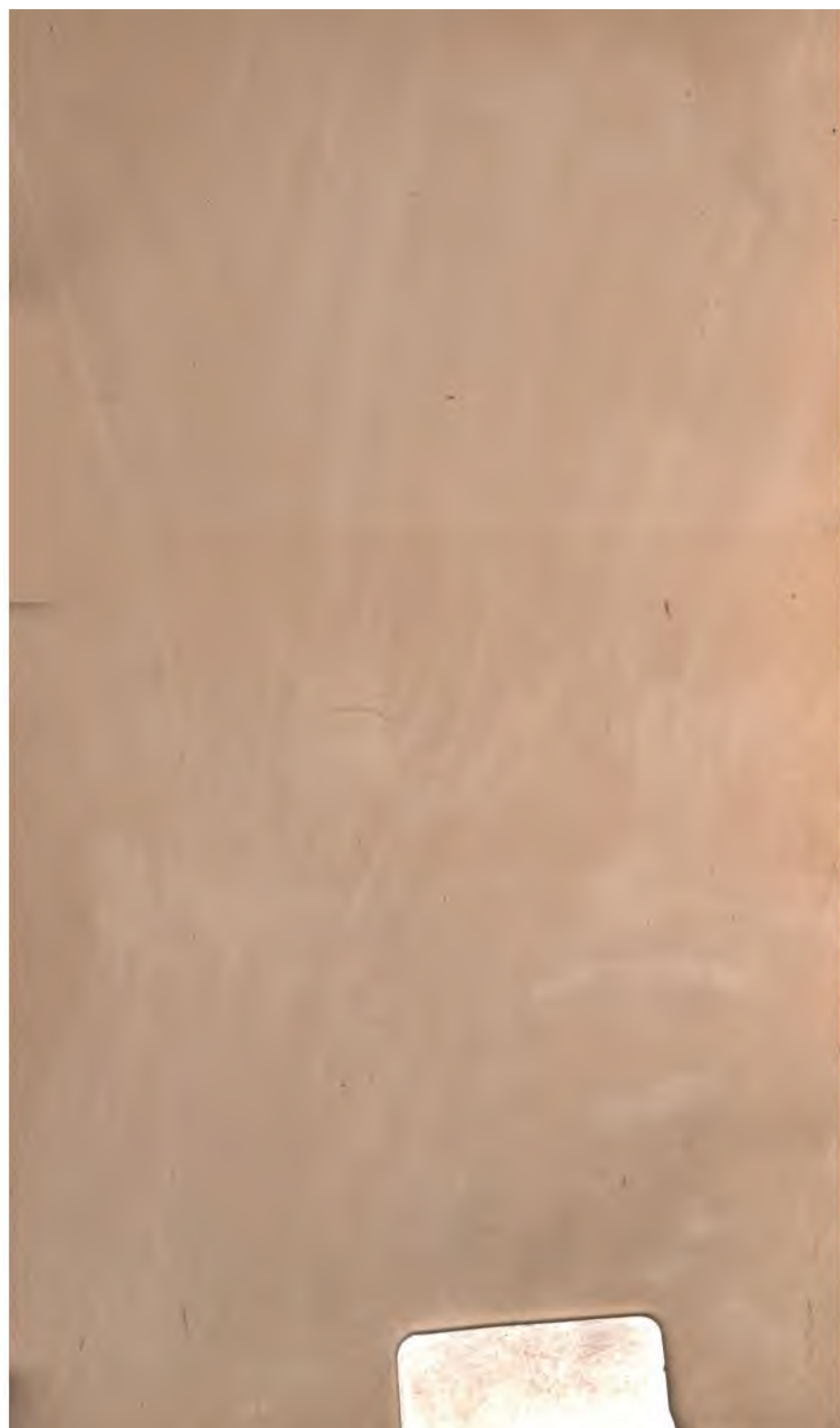
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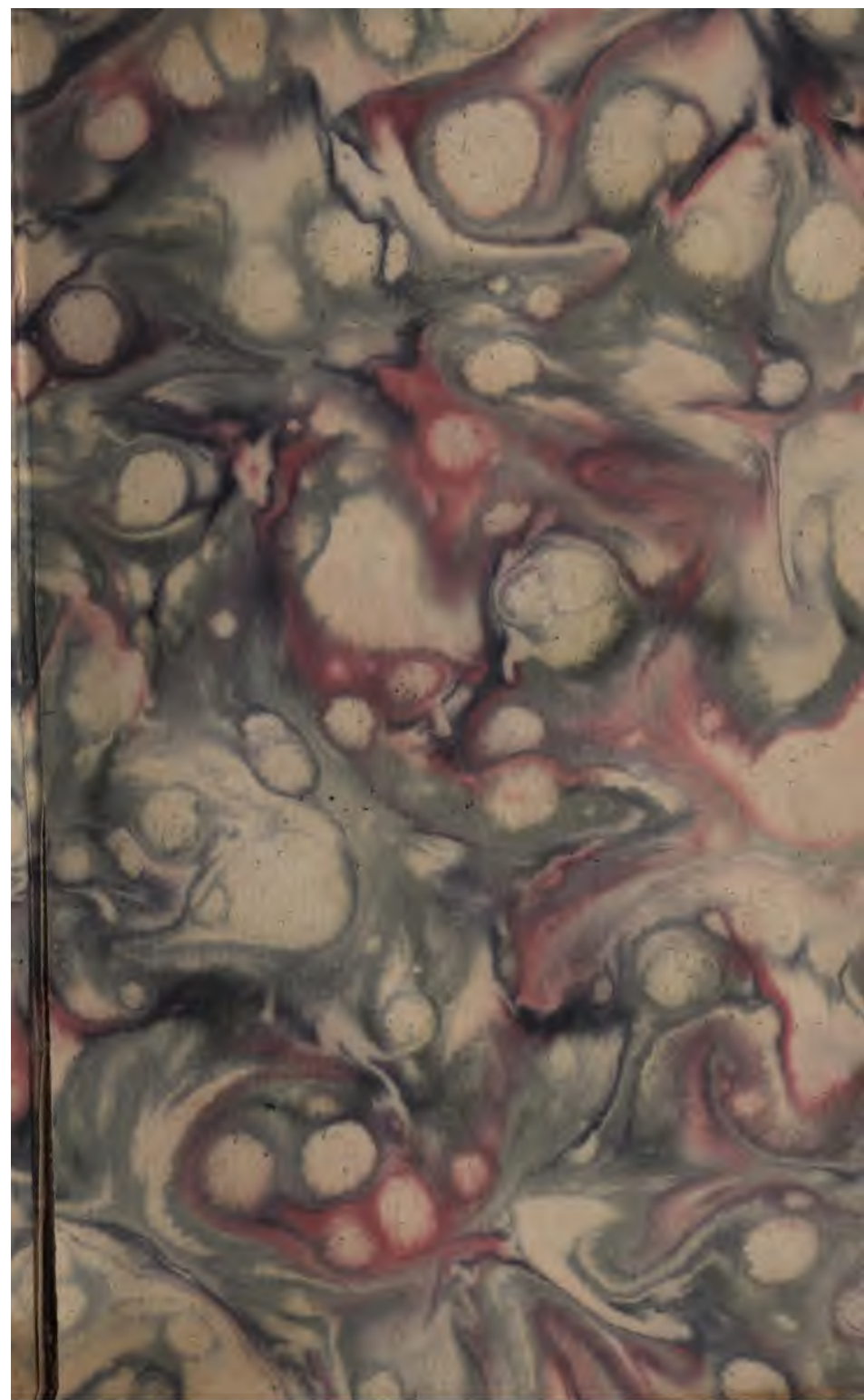
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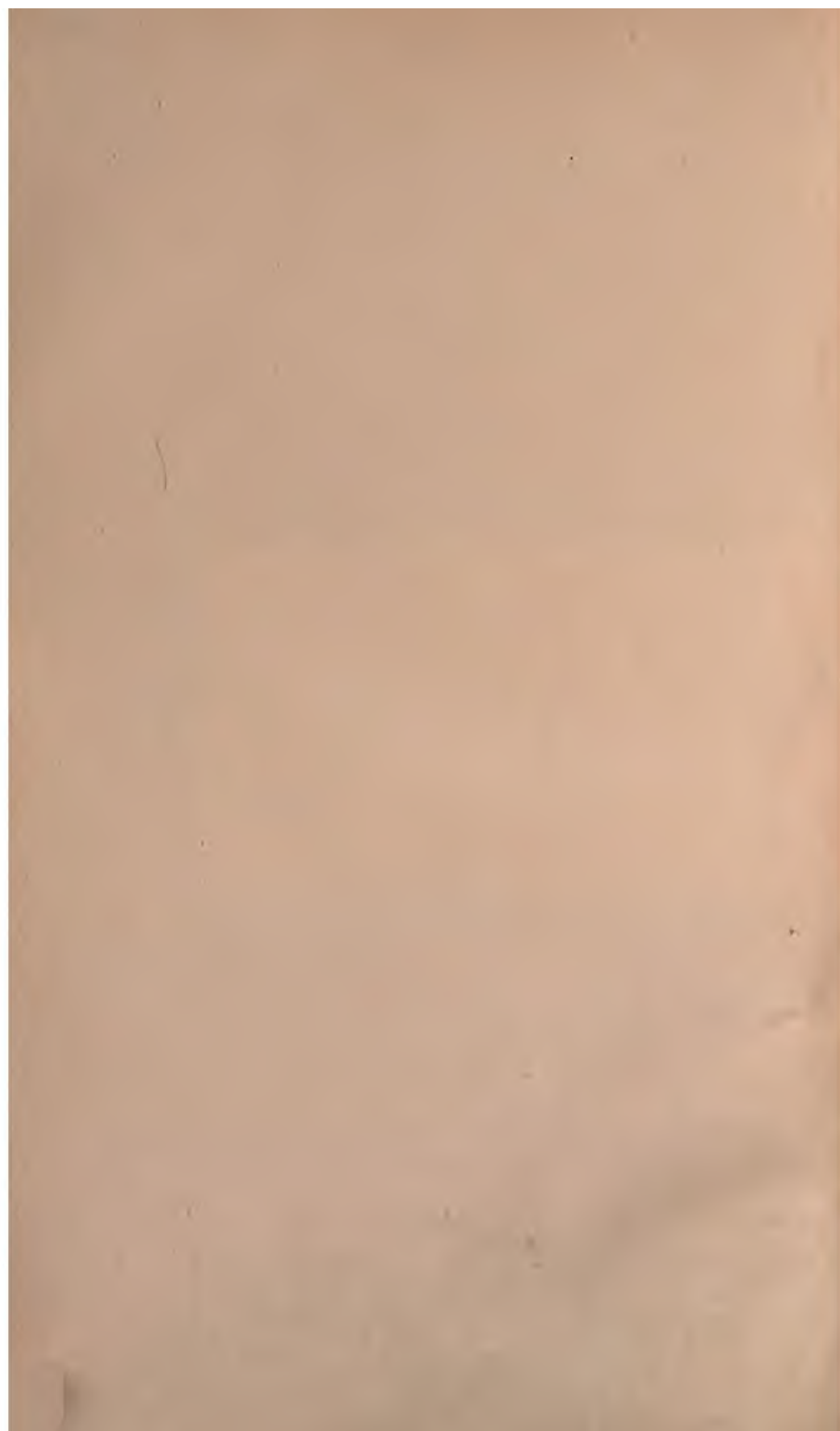
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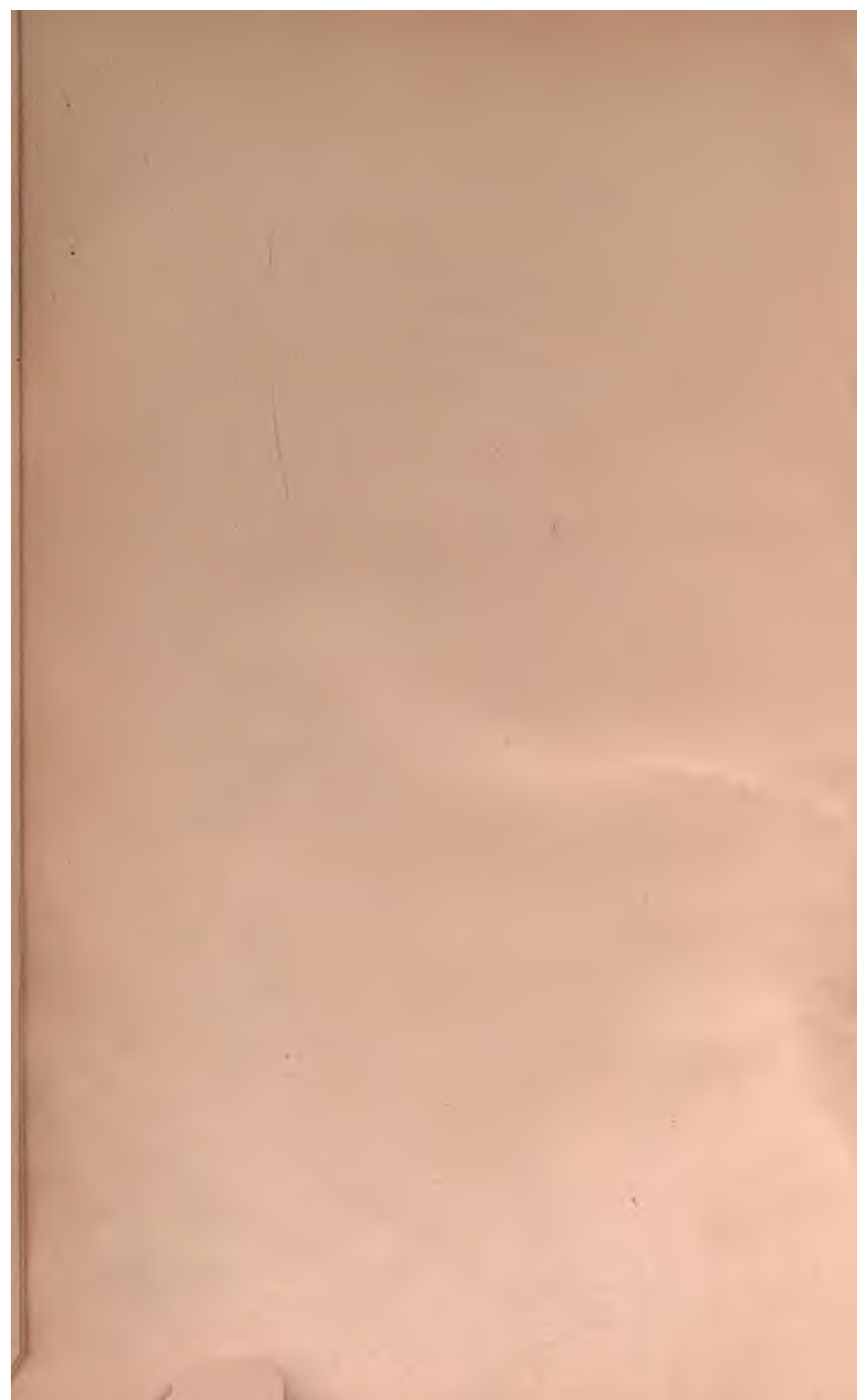














GALLERY 26.

THE METROPOLITAN MUSEUM
OF ART

HAND-BOOK No. 13

CATALOGUE

OF THE

CROSBY BROWN COLLECTION

OF

MUSICAL INSTRUMENTS
OF ALL NATIONS

Prepared Under the Direction, and Issued With the
Authorization, of the Donor

I

EUROPE

GALLERIES 25 AND 26

CENTRAL CASES OF GALLERIES 27 AND 28

NEW YORK

PUBLISHED BY

THE METROPOLITAN MUSEUM OF ART

1902

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INTRODUCTORY MATTER.

GENERAL INTRODUCTION.

ORIGIN AND HISTORY OF THE COLLECTION.

In 1884, through the kindness of a friend in Florence, Mrs. Crosby Brown secured a few Italian instruments to decorate her music room at Brighthurst, on Orange Mountain, New Jersey. These specimens, Nos. 1066, 1081, 1090, 1214 in the Catalogue, were the original nucleus from which the whole collection grew. Others were added from time to time, until the number reached 276, and the problem of housing so numerous and exacting a family became a serious one. It had been Mrs. Brown's desire from the first to make her collection useful to the public. Accordingly, after conference with Mr. William C. Prime, of New York, then one of the trustees of the Museum, she decided to offer it to the Metropolitan Museum of Art, only stipulating that she should have full charge of the arrangements during her lifetime, and be free to make any additions or changes which she might see fit. The offer was accepted by the Museum, and in 1889 the transfer was duly made. At this time the Museum possessed some forty-five instruments (Nos. 16, 41, 42, 110, 116, 342, 354, 360, 379, 391, 396, 399, 400, 413, 414, 479, 483, 857, 975, 976, 1007, 1012, 1015, 1022, 1024, 1025, 1040, 1041, 1044, 1046, 1061, 1062, 1063, 1064, 1065, 1067, 1070, 1072, 1073, 1077, 1199, 1210, 1212, 1221, 1223), largely European, many very beautiful, and all, with one exception acquired by purchase (No. 1221), the gift of Mr. Joseph Drexel, of New York. These were combined with the new acquisitions received through Mrs. Brown, and the 300 and more specimens resulting were placed on exhibition in Gallery 4, on the ground floor, adjoining the Cesnola collection of Cypriote glass. The collection thus constituted took the name from the larger donor, but the specimens received through the generosity of Mr. Drexel were specially labeled, and are indicated in the present catalogue by the donor's

name. In the few cases subsequent to 1889, in which instruments have been received through others than Mrs. Brown, this fact is also specially indicated, *e. g.*, No. 278 (Gallery No. 27) the gift of Mrs. Ladew, and Nos. 1236 (Gallery No. 27) and 1820 (Gallery No. 25), loaned, respectively, by Mr. Bayard Smith and Mrs. Hearst.

In the years following 1889 the collection increased rapidly, the additions being stored in the basement until such time as adequate exhibition room could be obtained. With the opening of the new north wing in November, 1893, the desired opportunity came, and the Director set aside Galleries 27 and 28 to be the permanent home of the collection, which now numbered some 700 specimens. Growth continued without interruption during the next three years, the number almost doubling by 1896. In that year room was found for the 600 additional specimens by the construction of upper cases, and the whole number rearranged and reclassified. The present numbering dates from this time. Three years later expansion was again necessary, and Gallery 26 was added to the others in order to provide room for a collection which now numbered more than 2,000 specimens. The new quarters made possible a much more satisfactory arrangement. Gallery 27 was set apart for Asia, Gallery 28 for Africa, America and Oceania, and Gallery 26 for Europe; while larger instruments, too cumbrous for exhibition in the wall cases, were placed in the centre of each room. It was deemed inadvisable to alter the numbers, as the constant additions and changes made any permanent uniformity of numbering impossible. Since 1899 more than 500 specimens have been added, the most important accession being a large number of European brass instruments. These have been housed in Gallery 25, which has been assigned by the Director for this purpose. The total number of instruments now in the possession of the Museum reaches nearly 2,800.

While the selection and acquisition of specimens has been solely the work of the donor, she has received constant and most generous assistance from many persons, without whose aid the work could not have been accomplished. She is es-

pecially glad to take this opportunity to make public acknowledgment of her indebtedness to the Directors of the chief European museums, to United States Consuls in various parts of the world, and to many correspondents of Brown Brothers & Company for painstaking and courteous assistance. Above all, she would express her gratitude to many missionaries of the various churches, who, although in many cases unknown to her personally, have responded most cheerfully to her appeal for help, and, in their several fields, have labored to advance the interests of the collection with an intelligence, a persistence and an efficiency which are worthy of the highest praise. Among individuals—to mention three names only among many—she feels under deep obligations to the Rajah Sourindro Mohun Tagore, of Calcutta, India, for the generous gift of a large and beautiful collection of Hindu instruments, and to Mr. Alfred J. Hipkins, of Broadwoods, London, and the Rev. F. W. Galpin, of Hatfield Vicarage, England, for many friendly suggestions and much helpful counsel. Mr. Hipkins has most kindly undertaken the preparation of the Introduction to the Special Catalogue of Keyboard Instruments which is issued as a companion to this volume.¹ To Mr. Galpin she owes a debt of gratitude which she can never repay for the unfailing generosity with which he has placed at her disposal not only his ample stores of technical information, but also the treasures of his unique collection. During a recent visit to the United States, undertaken at the collector's request, he spent more than three weeks at the Museum, assisting her in the identification and classification of the European specimens. In the preparation of the catalogue his counsel and assistance have been constant, and the prefaces which introduce the several groups of European instruments, as well as many of the smaller notes throughout the body of the text, are from his pen.

SCOPE OF THE COLLECTION.

The title of the collection indicates that it contains musical instruments of all nations. It has been the aim of the donor

¹ Reprinted page xxiii.

to bring together specimens of all the representative musical instruments known to have been used by man. The work of the ancient civilizations of Egypt, Assyria, Greece, Rome, etc., has, of course, largely perished, and a knowledge of their musical instruments, with the exception of a comparatively small number preserved in European museums or figured on the monuments, it is consequently impossible to obtain. In this field, therefore, completeness has not been sought. Some of the more important examples of those extant are, however, here represented by reproductions, and the Egyptian specimens are grouped together as a type case in Gallery 26 in order to form a suitable introduction to the European collection.

With regard to the instruments now in common use in Europe, the difficulty is of the opposite kind. Here the richness of the material renders a restriction necessary. To include all the forms now in use would be manifestly impossible. Moreover, quite apart from considerations of space, it has been felt that the latest developments of musical mechanism are more in place in the technical collection of a Conservatory of Music than in a Museum of Art. With these exceptions, no typical specimen which it was possible to obtain has been refused admission. Throughout the collection, where it was not possible to secure the original of an important type, as in the case of the Egyptian harp, the Roman bucina and many specimens of mediæval European instruments now extinct, careful reproductions have been secured of the best existing specimens. Thus every effort has been made to secure the greatest possible completeness within the field actually covered.¹

As at present constituted, the collection fulfils a double func-

¹The Metropolitan Museum of Art, at Mrs. Brown's suggestion, and under her direction, is endeavoring to procure photographs of the collections of musical instruments of the European Museums. Through the kind assistance of the Directors, of which it is desired here to make grateful acknowledgment, many have already been obtained, and the number is constantly increasing. They will be placed in the Library for the benefit of those who are interested in the study of the subject. Attention is also called to the photographs and drawings in the cases, designed to illustrate the method of playing the different instruments on exhibition.

tion. It makes it possible, first, to trace the development of the several distinct types of musical instruments from the first rude beginning to the finished forms now in use, and, secondly, to illustrate the varying forms assumed by these types under the influence of the different civilizations. The first explains the presence of the large number of savage specimens in the collection. Through these it is possible to recover many of the primitive forms which are otherwise inaccessible, and to discover many obscure links in the chain of development. It has been the special effort of the donor to secure a full representation of the savage instruments of America, North and South, and of the Islands of the Sea. Already many of the instruments included in the collection have become extinct, and the same destroying influences threaten before many years to exterminate the rest. For this reason, as well as for their intrinsic interest, the large representation of primitive specimens is a matter of congratulation. Attention is also called to the primitive and savage specimens included among the representatives of the higher civilizations. This union of the primitive and the more highly developed on a large scale and over a wide area constitutes a distinguishing feature of the collection.

For the full representation of Oriental instruments less explanation is needed. In China, Japan, Burmah, Siam, India, Persia, and the various Mohammedan countries of southwestern Asia and northern Africa, music has reached a point of development where the interest in its study ceases to be antiquarian. In each case we have to do with an art which has a long history back of it, and which has developed, both in theory and practice, forms of the highest interest to the musical student. There is already a large and growing literature on Oriental music. It is believed that the representative specimens contained in the collection will usefully supplement the information thus obtained. Even to those without technical interest in the subject, the number and high artistic beauty of many of the forms here included will be a revelation of the extent to which the development of the musical art has been carried in

quarters which lie outside the horizon of ordinary musical instruction.

In the choice of individual specimens the educational purpose has been paramount. Though containing many examples of rare artistic merit, no instrument has been chosen for its beauty alone, nor has historical association been a determining consideration. In each case the specimen has won its right to a place because illustrating some step in the development of music. No special effort has been made to secure the works of famous masters. The collector has no sympathy with the practice of locking up in museums instruments noted for rare beauty of tone. In a few cases, indeed, it may be important to secure single specimens in order to illustrate some principle in the history of the art. Thus, it is greatly to be hoped that the collection may ultimately contain examples of the workmanship of the great Italian violin makers. But, in general, a Stradivarius or an Amati is too precious to be condemned to a monastic existence.

Special efforts have been made to secure the complete representation of families where such are known to exist. The single instruments now in use in our orchestra are survivors of a much more numerous company. This is true not merely of the violins, with their predecessors, the viols, but also of many wind instruments. Thus the flute family, now reduced to two representatives, originally contained no less than six, and the same is true of the clarinet, the oboe and many others. It has been the aim of the collector, as far as possible, to recover the missing members, and to show them in their original relationships. Those who are best acquainted with the history of music will most appreciate the difficulty of this undertaking, and be quickest to realize how many years of patient research are represented in the modest groups which, to the uninstructed eye, seem so ordinary and commonplace.¹

¹ The following are the families completely represented: The viol, violin and guitar; the transverse flute without keys, transverse flute with keys; the very large recorders and the smaller set; the galoubet and the ocarina; the clarinet and saxophone; the krumhorn, oboe, bassoon and

Apart from the repetition which grows out of the inclusion of many localities and nationalities, duplicates have, as far as possible, been avoided. This has been done largely to economize space. In a collection designed for exhibition, as must be the case in a Museum of Art, the freedom possible under other conditions is impossible. It would, however, greatly add to the value of the collection if it were possible at some later date to gather about the instruments designed for exhibition a second group, which could be used solely for study and experimentation. If this were the case, the restriction which now prevents the inclusion of duplicates would fall to the ground.

A feature of the collection to which attention is called is the presence of models showing the mechanism of the various instruments, as, for instance, the different kinds of reeds, free and beating, the different varieties of tubes employed in wind instruments, as conical, cylindrical, etc., and the different actions of the various keyboard instruments. In this way it is possible to unlock some of the secrets hidden away within tubes and behind cases, and to show through how much more intricate and winding a path than might at first appear, man has been led in his search for sweet sounds.

In the second European room, Gallery 25, there is a collection of portraits, engravings, lithographs, etc., of musical composers, performers and writers on music. These are chronologically arranged in a revolving frame. Other portraits of less known musicians are placed in scrap books in the library.¹

pommer; the cornet à bouquin, ophicleide, Russian horn; trombone; helicon; brass sax horn, rotary valves; sax horn, pump valves; sax horn, bell over-shoulder model; wooden sax horn. Each group is outlined with cording in order to facilitate recognition.

¹ In all, the Museum possesses more than 700 portraits: of these, 203 were presented by Mrs. Charles B. Foote, and the remainder are the gift of Mrs. Brown. Only those exhibited in the revolving frame in Gallery 25 are included in this Catalogue.

ARRANGEMENT AND CLASSIFICATION OF THE COLLECTION.

Educational considerations have, so far as possible, been consulted in the arrangement of the collection. Of the two most common methods—the geographical and the genetic—the former has been preferred. This has not been due to any lack of interest in the principle of development, but solely to the belief that by the geographical arrangement it is possible to illustrate certain facts of interest in musical history which a purely developmental classification would obscure. The history of an art does not progress along straight lines. The river has its rapids and its eddies, as well as its deep, quiet pools. So, in the development of music, each civilization moulds the common musical material in fashions of its own. Progress is now rapid, now slow, and often we note what seems a retrogression. A geographical arrangement brings out the distinctive features of the different civilizations and enables one to see at a glance what each has contributed to the development of the art as a whole. In general, the collection falls into three parts. The first, containing the instruments of Africa, America, North and South, and Oceania, occupies Gallery 28. Asia fills Gallery 27, with its more developed art, as illustrated in the great civilizations of China, Japan, Corea, India, Siam and Burmah, Persia, Turkey and Arabia. Galleries 25 and 26 are given up to Europe, as well as the large central cases in the other two rooms. Roughly speaking, the three geographical divisions correspond to the three main stages in the history of the art. In the first room we have the musical instruments of primitive man, where the same simple forms recur again and again, with only unimportant variations. In the second, we meet highly developed forms of art, yet each with strong marks of individuality, due to the civilization of which it is the child. Entering the European rooms, we find that the last trace of isolation has vanished. Music has assumed a character truly cosmopolitan, and the work of each man, whether with hand or brain, has become the common property

of all the nations. Here, accordingly, the geographical arrangement has been abandoned in the interest of a more scientific classification.

This difference has its bearing on the problem of the cataloguer. Where the geographical arrangement is controlling, as in the first two divisions, it is more convenient to follow the order of cases, even though this involves the separation of instruments of the same kind. In the case of Europe, however, where instruments are grouped after their kind, departure from the strict case order has sometimes proved necessary. Frequent cross references have been inserted for the benefit of the visitor, and the student's guide, on page xxxiv, will, it is hoped, sufficiently explain the principle of the arrangement. The gap between the different parts of the catalogue is in a measure bridged, and the relation of the European instruments to their more primitive relatives indicated, partly by the Egyptian type case, in Gallery 26, which gives examples of the most important instruments in common use in a civilization to which the music of Europe was so largely indebted, partly by the notes in connection with the several Prefaces to the European catalogue, which call attention to some of the more important allied forms to be found in other parts of the collection.

While the second to appear in order of time, the Handbook which is here offered to the public constitutes the first section of the general catalogue. Theoretically, no doubt, the primitive and Oriental instruments should precede those of Europe. Practically, however, the reverse order proves most convenient. With Europe we reach the most highly developed forms which musical history presents. Europe, therefore, gives us our most convenient point of departure. For the classification here adopted, the collector desires to express her indebtedness to Mr. Galpin, whose assistance in this, as everywhere in the preparation of the catalogue, has proved invaluable. The divisions followed are a simplified arrangement of the scheme drawn up by him for the International Music Exhibition held in 1900 at the Crystal Palace, London, and are briefly set

forth in the table which follows.¹ More detailed information on the different classes and sections will be found in the prefaces, which introduce the several divisions of the catalogue.

In conclusion the collector desires to express her special obligation to her son, Professor Wm. Adams Brown, whose advice has been constantly at her service during the preparation of the catalogue, and who has seen the book through the press.

M. E. B.

¹ To Mr. Victor Mahillon, Curator of the Museum of the Royal Conservatory of Music at Brussels, the musical world is indebted for the most elaborate classification of musical instruments at present known.

TABLE OF CLASSIFICATION
OF
EUROPEAN INSTRUMENTS

INCLUDING THOSE OF

THE UNITED STATES.

SIMPLIFIED FOR EXHIBITION PURPOSES AND CASE ARRANGEMENT, AND SHOWING SOME OF THE LEADING TYPES IN THE COLLECTION.

CLASS I. STRINGED INSTRUMENTS.

DIVISION I. WITHOUT A KEYBOARD.

SECTION A. PLUCKED.

Types : Harp, Psaltery, Lute, Cittern, Guitar, Mandoline.

SECTION B. STRUCK.

Types : Dulcimer, Keyed Cittern.

SECTION C. BOWED.

Types : Viol, Violin, Vielle or Hurdy Gurdy.

DIVISION II. WITH A KEYBOARD.

SECTION A. PLUCKED.

Types : Spinnet, Virginal, Harpsichord.

SECTION B. STRUCK.

Types : Clavichord, Pianoforte.

SECTION C. BOWED.

Type : Claviola.

DIVISION III. WITH AUTOMATIC MECHANISM.

Type : Barrel Piano.

CLASS II. WIND INSTRUMENTS.

DIVISION I. WITHOUT A KEYBOARD.

SECTION A. WHISTLES.

Types : Recorder, Transverse Flutes.

SECTION B. REEDS.

- (1) Beating. (a) Single Reeds. Types : Clarinet, Saxophone.
 (b) Double Reeds. Types : Oboe, Bassoon, Krumhorn.
 (c) Single and Double Reeds with Air Reservoir.
 Types : Bagpipe, Musette.
 (2) Free. Types : Accordion, Concertina.

SECTION C. CUP MOUTHPIECES.

Types : Cornetto, Trumpet, Trombone, Horn, Bugle.

DIVISION II. WITH A KEYBOARD.

SECTION A. WHISTLES AND BEATING REEDS.

Type : Pipe Organ.

SECTION B. FREE REEDS.

Types : Harmonium, Reed Organ, Harmoni-Flute.

DIVISION III. WITH AUTOMATIC MECHANISM.

Types : Barrel Organ, OrguINETTE.

CLASS III. VIBRATING MEMBRANES.

Types : Drum, Tambourine, Onion Flute, Pan Bomba.

CLASS IV. SONOROUS SUBSTANCES.

DIVISION I. WITHOUT A KEYBOARD.

Types : Bell, Cymbals, Jew's Harp, Nail Violin, Harmonica.

DIVISION II. WITH A KEYBOARD.

Type : Keyed Harmonica.

DIVISION III. WITH AUTOMATIC MECHANISM.

Type : Musical Box.

CLASS V. MUSICAL ACCESSORIES AND
ILLUSTRATIONS.

Speaking Trumpets, Books, Portraits.

F. W. G.

SPECIAL INTRODUCTION TO THE KEYBOARD INSTRUMENTS.¹

By A. J. HIPKINS, F. S. A.

There are no musical instruments that during the past four hundred years have been more generally distributed where Western music has been known than those with keyboards, whether their sound is produced from strings or with what is understood by wind. The reason for this favour is the comparative ease with which the sounds are elicited, without the player's having to make the note, and the facilities the keyboard gives for including, as far as hands and fingers will permit, the different voices or parts, and the figuration of a harmonized musical composition, itself an outcome of these facilities. The violin and wind quartets require as many performers as there are parts to present a like combination. The nearest approach to a keyboard stringed instrument was the Lute, as perfected toward the end of the sixteenth century, but the difficulty of performance was beyond the ability of most who attempted it, and there had to be, even with the most skilled, many unavoidable lacunæ. The spinet-player, or clavicembalist, had incited the lutenist to a competition in which the lute was bound ultimately to fail, but not without leaving a memory of the technique of the lute in features retained in what is known as accompaniment.

The essential foundation of any stringed instrument is in the

¹ Written for the Special Catalogue of Keyboard Instruments, and here reprinted by permission. For Catalogue of Keyboard Instruments see pages 80 and 196.

strings; of a wind instrument, in the reeds and pipes, set in vibration by the breath or other compression of air; but the characteristic of all, whether wind or stringed, made to sound by key levers (as unlocking the sounds), is the keyboard. It arrests the eye at once, and even in an embryonic form, in the Hurdy Gurdy, it attracts and suggests its use. By whom it was invented is not remembered. The earliest keyboard known to us is that of the Hydraulic or Water Organ, invented in the second century B. C., at Alexandria—a Greek invention, and established according to the Greek ideas of music that then prevailed. Water came in to compress the air for the pipes, as bellows were used for the same purpose subsequently. The pneumatic apparatus may indeed have preceded the hydraulic, but the latter, we may suppose more efficiently applied, gained the more prominent place and record. We are here concerned only with the keyboard, and from an anonymous writer early in the Christian era we know that six octave scales, each resembling in form our descending minor scale, attained a compass of two octaves by combining the Hyper-lydian, Hyper-ionian, Lydian, Phrygian, Hypo-lydian and Hypo-phrygian tropoi, or key-modes. The keys were all level, as shown by a terra-cotta model of such an instrument dug up from the ruins of Carthage, attributed to the first or second century A. D., and preserved in the museum of St. Louis at Carthage, near Tunis, in Africa. There are two keyboards, of eighteen and nineteen keys respectively. As the complete Hydraulikon, according to the anonymous writer, had twenty-one, we may leave out the later introduced Hyper-lydian, and then have eighteen keys, comprising the notes g, a, b flat, b natural, c, d, e flat, e, f, f sharp, g, a flat, a, b flat, b natural, c, d, e, or an octave lower; the pitch, however, being uncertain. The nineteen key-bank included a note we are not sure of. According to Vitruvius, the key levers were balanced with horn springs to effect their return when released by the touch. In the Carthage model, to save space, they were probably not balanced but hinged, as in a sixteenth century or early seventeenth century Regal, one of the organographic treasures of the writer. Yet, in later pneu-

matic organs, balanced keys do not appear, the pipes being controlled by slides like the handstops in a modern organ, perhaps through the paucity of pipes in organs we have record of, that existed in the dark ages. It is almost certain that balanced keys had to be re-introduced, and it would seem that this came about through the Monochord, a pitch-measuring string apparatus, employed as no doubt the very early organs were, as a pitchcarrier or interval measurer. The monochord was a sound-box very like an *Æolian Harp*, at first with one string, whence the name, to be later doubled, trebled, and quadrupled, thus becoming ultimately polychord, with strings of the same measure, as in an *Æolian Harp*, the notes required being stopped by little bridges placed by hand against the measurement giving the interval sought. The *Hurdy Gurdy* was, in principle, such a monochord set in vibration by a wheel, producing a kind of violin tone, but stopped by little wooden plugs analogous to keys. It occurred to some ingenious monk—not Guido d'Arezzo as has been said, but after his time—to adapt, by means of a keyboard, such a stopping contrivance to a finger or plectrum-struck string, and by simple leverage to produce the *Clavichord*. *Virdung*, our earliest authority on modern musical instruments, writing in 1511, says expressly it was not then known when the clavichord was invented, or by whom. In his day the full chromatic keyboard was in use, with lower and upper keys, and he gives a diagram of an earlier diatonic keyboard with two B flats, following Guido's *Hexachord system*. In point of fact, our chromatic keyboard, but with the upper keys, or sharps, put further back, was in use long before; witness the great *Halberstadt organ*, built by a priest, *Nicholas Faber*, in 1361. The original manual compass was evidently preserved when the organ was restored in 1495. The compass was an old Greek one of fourteen level notes, from B in the bass clef to a¹ in the treble, with the chromatic notes at the back, the natural keys very wide, so that a major third was as much as the hand could stretch; and no fingering being possible, the keys were depressed by the side of the hand or fist. *Prætorius*, our next informant after *Virdung* about musical instruments,

tells us the church organ of St. Egidius, at Brunswick, dated 1456, permitted the stretch of a fifth. Of another organ of the same period, that of St. Salvator of Vienna, he says the compass was extended to the treble clef c^2 , and in the organ at Mildenberg the compass was advanced to the higher f^2 of the treble clef, thus getting away from the boundary of men's voices. By this time the short measure had been introduced, and the bass B pipe sounded a third lower, G. The width of the keys was gradually being lessened, and when Crang, in 1499, built the great organ of St. Blaise at Brunswick, the octave was only the width of nine keys of Prætorius' time, when that interval had come to be grasped, as it has since remained, by an average hand. But Positive and Portative organs had not wide keys. In fact, the latter, in the fourteenth century, from contemporary paintings, appear to have been made to speak, not only by small level keys, but by gimlet-shaped studs, something like the keys of a concertina. The Virginal, or Spinnet, which was a Psalter to which keys were adapted, and which, as well as the clavichord, had been in use in the earliest years of the fifteenth century, even in the oldest specimens (there is one dated 1490), had always narrow keys, as in the modern keyboard. We may therefore safely conclude that the keyboard permitting the grasp of the octave is original, in respect to approximate measurement, in all the smaller keyboard instruments.

Let us review the keyboard province at the opening of the sixteenth century. There were large Church organs, with three rows of keys and pedals, the use of the latter having originated in the old Harmony, as it is called in Prætorius, of the drone (point d'orgue). The original Mixture was now broken up into registers, controlled by slides, and the beating or striking reed stops were about to be introduced. There were positive organs for chapels and small choirs, and some portative organs still remained in use for processions. In domestic use there were clavichords, still called monochords, with two or three tangents (strikers) producing their notes from one pair of strings; and virginals or spinets, with jacks (mechanical

pletra), oblong and pentagonal, and the long, wing-shaped double and treble spinets, known as Clavicembali, Clavecins or Harpsichords. In England the first independent compositions for these keyboard instruments appeared; a prologue, as Dr. Oscar Bie calls it, in his fascinating "History of Pianoforte Playing," that began with Byrd and Bull, and ended with Orlando Gibbons and the Restoration. At the beginning of the seventeenth century was the dawn of opera and oratorio, and a new order of accompaniment made the keyboard instruments indispensable to the composer, who had already found them his help and strength in contrapuntal problems. At the beginning of the eighteenth century the Paduan harpsichord maker Cristofori had, in Florence, by his mechanical genius, solved the problem of producing tone-gradation by a keyboard, in the new Pianoforte—Gravecembalo col Piano e Forte—of his invention. Attempts had been made to vary the harpsichord by stops, particularly in the Netherlands and England, and, incited by the pianoforte, to lend it a *crescendo* and *diminuendo* by Plenius' Swell, and ultimately by Shudi's Venetian Swell, which has found an effective development in the organ; but all in vain, as by the early years of the nineteenth century the pianoforte had won the victory all round and Beethoven had composed for it.

In this splendid collection, with which Mrs. Crosby Brown has become pre-eminently associated, we may find many noteworthy examples of keyboard instruments and their history. Among interesting specimens of the clavichord is one numbered 2543¹ in the catalogue, attributed to Italy, and dated 1537. Like many old instruments, this one has met with considerable restoration, not entirely to its advantage, but not affecting its interest and value. Italian natural keys were at that time of boxwood, rarely of ivory or other material. A German restorer appears to have substituted black natural keys and white chromatics, as was common in Germany in the eighteenth century. He got entangled in arranging the sequence of the chromatics, possibly from not understanding the fretting by which two or three keys would act upon one pair of strings. All clavichords

¹ Page 90.

were "gebunden," or fretted, until the epoch of Bach. But there were frequently single notes at the treble end, and this may have puzzled him. Shifting the last chromatic key but one a degree upward would put the succession right; the groups of chromatics being according to the position of the fourth and fifth within the octave, 2, 3, 2, 3, 2, and 2 for the natural compass from B below the bass clef to a¹ in the treble, twenty-one level keys. To the same restoration we may attribute an erroneous relettering of the legend, which should surely run "UT ROSA FLOS FLORVM ITA HOC," etc.—as the rose is the flower of flowers, so this is the clavichord of clavichords. But it was not an Italian practice to use such legends, and this instrument may after all be Flemish or German. Italian or not, it presents very early features of construction, and is the oldest clavichord I have met with. The earliest mentioned in my "History of the Pianoforte"¹ is dated 1547, and is by Dómenico di Pesaro (Dominicus Pesarensis). There is a beautiful spinet, No. 2527,² in this collection, bearing his name, dated 1561. Another rare spinet, No. 2344,³ being oblong, would by many be regarded as a virginal; with Prætorius the pentagonal was the virginal, but in England, from the Tudor time until the Restoration, the name "Virginal" covered all keyboard stringed instruments, and if "Spinet" was used, it was as a synonym. After the Restoration, with French fashions, the name "Spinet" came into general use. What makes No. 2344 more particularly noteworthy is that it is by C. (Cristofel) Ruckers, whose instruments, if he made many, are little known, and whose relationship to the great Ruckers family of spinet and harpsichord makers is still undetermined. The Florentine, No. 1230,⁴ is, as was usual with pentagonal or hexagonal spinets in Italy, in a false case, from which it can be withdrawn. Having a projecting, not a recessed, keyboard, it must be as old as the middle of the sixteenth century. It is more interesting in another sense; the wrest, or tuning-pins, being inserted in a rail in front,

¹ "History of the Pianoforte," by A. J. Hipkins, F. S. A., Novello Ewer & Co., London and New York, 1896, pages 58, 59.

² Page 81.

³ Page 85.

⁴ Page 84.

over the keyboard. This distinguishes it as a *Spinetta Traversa*, which is more rare than the *Spinetta Tavola*, in which the wrest-pins are at the right-hand side, like a clavichord or very old square piano. The *Spinetta Traversa* was adopted as the English post-Restoration model, as may be seen, in No. 1223¹ by Charles Haward, and No. 1212¹ by Thomas Hitchcock. Haward was patronized by Pepys, as he has recorded in his diary. The specimen here is dated 1684. The Hitchcocks, Thomas and John, did not date their instruments, but numbered them in one series; the instrument here shown is No. 1518. No. 1225² is an upright spinet, or *Clavicytherium*, probably of Roman origin, as there are three rosaces in the sound-board. It may be compared in its structure with the lovely harpsichord, No. 1224.² The beautiful paintings are again a later addition to a cherished instrument, another proof of how much such treasures were valued in those days! To display the paintings, the outer case is designed like a bookcase, not following the lines of the instrument. As I have said elsewhere, "the impression conveyed to the beholder by this unique instrument is one of satisfaction, due to the simple and refined scheme of proportion."³

Then there is the no less rare Double Spinet, No. 1196,⁴ by Ludovicus Grovvelus (mentioned in Huygens' correspondence). It bears the maker's name and the date, 1600. The painting within the lid portrays the duel between David and Goliath, and the victory and triumph of the former, who is received with acclamation and music. Prætorius relates that it had been the custom to put the small octave spinets (see No. 1227)¹ upon the larger instruments, like turrets upon a tower; in this specimen the *Ottavina*, although removable, is included within the case. Only two other such double spinets are known, both decorated with paintings and mottoes. One, by Hans Ruckers, the elder, is owned by Mr. Morris Steinert.⁵ The other, by Martin Vander Beest, dated 1580, is at Nuremberg.

¹ Page 86. ² Page 87. ³ "History of the Pianoforte," page 75.

⁴ Page 85.

⁵ Depicted in "Musical Instruments, Historic, Rare and Unique," by A. J. Hipkins, F. S. A., Black, Edinburgh, 1888, p. xviii.

The appearance of three-bank harpsichords so late in the day, after the search there has been everywhere for old musical instruments, is rather startling. The object of another keyboard is of simple explanation. The instruments that have been discovered are Italian, and as it was not the custom in Italy, as in the Netherlands and elsewhere, to make harpsichords with shifting registers and hand stops, doubling and, as we here see, finally trebling the keyboards, was sufficient for the simple changes required. Until the time of Bach and Handel registers were set for harpsichord and organ, as was the case with the orchestras of the time, for the duration of the movement. No. 2359¹ is a magnificent specimen of a highly decorated three-bank harpsichord and stand. The date given, 1779, seems rather late for it, although it has a pianoforte front of that epoch. The instrument itself is probably older. The highest keyboard acts upon the octave, string, the middle one upon the octave and one unison, and the lowest upon the two unisons. In No. 2363² we have a rare Double Harpsichord by one of the inventors, Joannes Couchet, the grandson of the elder Hans, and nephew and pupil of the younger Hans or Jean Ruckers of Antwerp. It was Couchet who, about 1640, changed the double-keyboard harpsichord from a mere transposing instrument, contrived to accommodate the Authentic and Plagal Church modes with the singers' capabilities, to a Forte and Piano harpsichord, with three strings (reducible to two and one) upon the lower keyboard, and one string always for the upper. All the then existing harpsichords were altered to suit this new system. An exception occurs in one I have met with, which probably owes its unaltered condition to its long preservation in Italy. I can recall only one other Jan Couchet harpsichord, which is in Edinburgh. In No. 2363 the stops or slides projecting from the side of the case, as in the old positive organs, control the registration.

Other finely decorated harpsichords in this rich collection show how reverently, at one time, the keyboard instruments were cared for. No. 1218,³ by Louis Bellot, and one from Naples, No. 1231,⁴ with its lovely paintings of musical angels and

¹ Page 82.² Page 81.³ Page 89.⁴ Page 88.

the sleeping beauty within the lid, will arrest attention. Nos. 1220¹ and 1221² are by one maker, Jerome de Zentis, of Viterbo, and are also painted and otherwise adorned. No. 1220 is inscribed "Hieronymus Zenti Fecit Romæ, A. S., MDCLXVI.," and also "Joannes Ferrini Florentinus Restauravit, MDCCCLV." Now Ferrini was a pupil of Cristofori, and the master left to him the completion of the pianofortes he had in hand at the time of his death in 1731. Ferrini had in the previous year made the pianoforte for the Queen of Spain, chronicled by Burney as having been in the possession of the great singer, Farinelli, and named by him "Raffaello d'Urbino"!

Bartolommeo di Francesco Cristofori was, as already said, the inventor of the Pianoforte, and Mrs. Crosby Brown has had the good fortune to acquire in Florence the earlier of the two pianofortes known to have been made by him. This treasure, No. 1219,³ is her most important benefaction to this great collection. Cristofori's invention was published in 1711, and this pianoforte, dated 1720, represents it in its perfected form. The action has the "escapement," without which there can be no vibrating note; the "check," an all-important step toward repeating notes; the shake, etc. Cristofori's action was exactly copied by Silbermann, as well as the structure of the instrument, in the three pianofortes he supplied to Frederick the Great, which are still preserved at Potsdam. The biographical notice of Cristofori in Grove's "Dictionary of Music and Musicians" gives all the known antecedent particulars of this historical Piano e Forte and its inventor and maker.

That there should be in this collection a Claviola, No. 2404,⁴ is of interest. This sostinente keyboard instrument was devised by the inventor of the modern upright pianoforte, John Isaac Hawkins, of Bordentown, New Jersey. He was an Englishman by birth and an engineer by profession. He introduced the claviola to the public at Philadelphia in 1802. In his upright pianoforte of 1800 he anticipated many features of construction

¹ Page 81.² Page 88.³ Page 91.⁴ Page 97.

that have since been generally adopted, one being the complete iron frame.

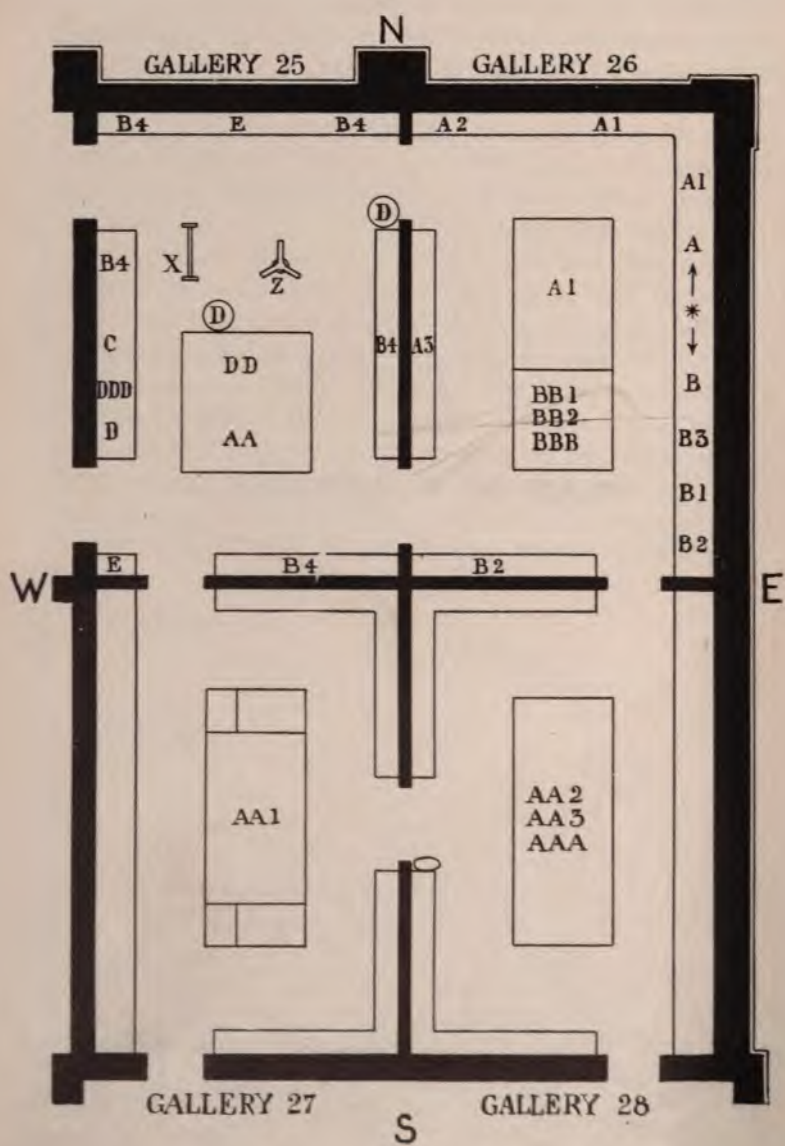
The catalogue numbers 1923-8¹ and 2401¹ are attached to an instructive selection of models of actions, showing the mechanical agencies employed in various keyboard instruments to convey the impact of the touch to the strings, to cause their vibration. The simplest is for the clavichord. The depression of a key raises a slender brass upright, a "tangent," on the further side of the balance, to serve as a striker, and at the same time as the further bridge of the strings affected. When the key returns and the tangent quits the strings, the cloth interwoven at the back damps them—that is to say, stops their vibration. The next, in order of simplicity, is the spinet and harpsichord "jack," which causes a small plectrum of quill, sometimes leather, to nick the string in passing, the little cloth damper coming into use when it returns. For three hundred years, until its use ended, the jack remained without alteration. The more complex problem of the hammer in the pianoforte has, from Cristofori to the present time, exercised many minds, and will continue to do so as the pianoforte players contrive increased technical difficulties to be overcome by the touch.

September 9, 1901.

¹ Page 246.

PLAN OF GALLERIES.

PLAN OF GALLERIES.



KEY TO PLAN OF GALLERIES.

Gallery 25.....	Europe
Gallery 26.....	Europe
Gallery 27.....	Asia
Gallery 28.....	North America, Oceania, Africa

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STUDENT'S GUIDE TO THE EUROPEAN COLLECTION.

In Gallery 26 (the First European Room) the Ancient Egyptian type case No. 63, (middle case, east wall), should be taken as a starting point.

If it is desired to follow out the history of Stringed Instruments (Class I), pass to the left and there will be seen the Harps (the larger specimens in the central case adjoining), the Lutes, and, in the north wall case, the Guitars, Mandolines, Citterns and Psalteries. In the end case (north wall) are the Dulcimers. In the west wall cases are the Bowed Instruments, concluding with examples of the Hurdy Gurdy. Owing to the space required, the Keyboard Stringed Instruments are arranged in the central cases of the other music galleries as follows: In Gallery 25, various specimens showing the development of the two main types; in Gallery 27, those with Plucked Strings—the Spinnet, Virginal or Harpsichord; and in Gallery 28, those with Struck Strings—the Clavichord and Pianoforte—with a specimen of a keyboard Bowed Instrument.

Returning to Gallery 26, Case 63, the history of Wind Instruments (Class II) may be traced by passing to the right. First are the Whistles, the Flutes and the Single Reed Instruments; then, in the south wall cases, the Double Reed Instruments and Bagpipes. The Free Reeds are placed over Case 63, and the Keyboard Wind Instruments occupy the lower half of the central case.

In Gallery 25 (the Second European Room) are the Cup Mouthpiece or Brass Instruments, as they are commonly

called. In the south wall cases are the Cornetti and Ophicleide group; in the east wall cases the Horns; in the north wall cases the Trumpets and Trombones, followed by the Valve Cornets and Saxhorns, which are continued in the first case on the west wall. The Vibrating Membranes (Class III) and the Sonorous Substances (Class IV) are in the remaining cases on the west wall, while in the north end of the central case are Sonorous Substances furnished with keyboards.

Musical Accessories (Class V) are placed with the class of instruments to which they refer, *e. g.*, Collection of Bows, with the Violins; Collection of Reeds, with the Reed Instruments, in Gallery 26; Speaking Trumpets, over north wall case, Gallery 25, etc., while the Portraits of Musicians and Charts showing the Development of Musical Instruments will be found on standing frames in Gallery 25.

F. W. G.

EGYPTIAN TYPE CASE.

EGYPTIAN TYPE CASE.

SHOWING ANCIENT EXAMPLES OF THE FOUR CLASSES UNDER
WHICH THE EUROPEAN INSTRUMENTS ARE ARRANGED.

PREFACE.

It is undoubtedly to the ancient and cultivated civilization of Egypt that Europe is indebted not only for its musical scale, but for the principal forms of musical instruments at present in use. This great nation, placed in close contact with that central region from which, as is generally believed, the whole earth was overspread, probably shares with Assyria the honor of developing and determining the chief methods of sound production which have descended to our own day. The commercial intercourse which Greece, and afterward Rome, maintained with Egypt, naturally led to the introduction into Europe of those arts and sciences which had been fostered with such care and success in the land of the Pharaohs. Not that we would hereby imply that to this nation we owe every detail in matters musical. Far away in the East the Asiatic races evolved their own musical instruments and ideas. We search the ancient Egyptian records in vain for a bowed stringed instrument; for it is to the great Oriental incursion in the eighth century of our own era that we are indebted for the violin bow. The double reed, too, now used in the oboe, was unknown in the oldest Egyptian days, so far as has been at present ascertained; for this, again, we must seek a different origin, and we find that it became known to the Greeks and Romans by their association, either as conquerors or traders, with the East.

Yet the main forms of our present musical instruments are to be found pictured on the painted walls of Egyptian temples and palaces. Nor can we forget that to this country—late in

its history, it is true—we are indebted for the first keyboard instruments; though the arrangement of the levers in the hydraulic organ invented by Ctesibius, of Alexandria (c. 280 B. C.), did not in any way represent the chromatic order adopted in the later European instruments.

As we therefore owe so much to the inventive genius of these old-world musicians and mechanics, it has been thought that no better introduction to the European collection could be found than in an exhibition of the four classes of musical instruments—String, Wind, Vibrating Membranes and Sonorous Substances—as used in the orchestras, assizes and religious ceremonies of ancient Egypt.

Nos. 411, 412, 2508, 1649, 1650 and 2662 are reproductions secured, many of them, through the courtesy of foreign museums; Nos. 2634, 1251, 1365 and 1325,¹ modern instruments closely resembling those used by the ancients. In the case of Nos. 2665 and 2664, where no corresponding specimens were obtainable, copies have been made from drawings of ancient Egyptian wall paintings. The remaining three instruments are originals, No. 1595 having been found in a mummy case, and Nos. 1250 and 1599 in the Tiber at Rome, the Sistrum having been introduced into Italy with the worship of Isis.

F. W. G.

¹ The latter has been remodeled, so as to correspond more closely to the original. See page 6.



Case No. 63.
EGYPTIAN TYPE CASE.
Page 5.

EGYPTIAN TYPE CASE.

CATALOGUE.

GALLERY 26. CASE 63.

(Middle Case, East Wall.)

CLASS I. STRINGED INSTRUMENTS.

- 411.¹ BUNI. Harp. A hollow sound-box of wood, covered with parchment, the strings attached to a central bar running beneath the parchment sound board. Twenty-two strings of gut attached to a straight cross-bar, which is inserted at almost a right angle into the sound-box. The strings are tuned by means of cords twisted around the bar and ornamented with tassels. There is no front pillar, a characteristic of all the ancient and most of the modern Oriental harps. This harp was usually rested on the ground when played. Egypt. B. C., 1500. Reproduction. Original in the Louvre, Paris.

Height of sound-box, 3 feet 5½ inches. Length of longest string, 3 feet 3 inches. Length of bar, 1 foot 8 inches.

- 412.¹ BUNI. Harp. A boat-shaped sound-box of wood, projecting from the end of which is a broad neck, the whole cut from one block. Across the sound-box is a bar of wood similar to that in the previous specimen, to which four gut strings are attached. Over this bar, and covering the sound-box, parchment was originally stretched. The strings are attached to four pegs placed at the end of the neck. The instrument was rested on the shoulder when played. Egypt. Reproduction. Original in the Louvre, Paris.

Length of sound-box, 2 feet 1 inch. Width of sound-box, 4½ inches. Length of longest string, 4 feet.

¹ Nos. 411, 412. Reproductions procured through the courtesy of the Director of the Louvre, Paris.

1325. NOFRE. Lute. Pear-shaped body of wood, with a long neck or fingerboard, provided with frets. Three gut strings played with the fingers or a plectrum. This instrument is similar to the Oriental Tanbour, but the front of the sound-box is of parchment instead of wood. Modern instrument remodeled to correspond with type shown in Egyptian wall-paintings.

Length, 2 feet 4 inches. Width, 4 inches.

CLASS II. WIND INSTRUMENTS.

2508. SEBI. Flute. A long tube of natural reed, with five finger-holes pierced toward the lower end. The instrument was held almost vertically and blown across the upper edge. Egypt. Reproduction made by Mr. J. D. Blaikley, of London. Original in a museum at Florence, Italy.

Length, 2 feet $3\frac{1}{2}$ inches.

This instrument is similar to the vertical flute still used in the East, and called *Nay* or *Nei*. It is the parent of the Recorders and Flageolets of Europe.

- 1649, 1650. MAM. Pair of Reed Pipes. Small cylindrical tubes (originally of reed), one pierced with three oblong finger-holes, the other four. The instrument was probably played with a small single-beating reed of straw, similar to that used in the bagpipe drone, and in a more perfected form in the clarinet. The two instruments were placed in the mouth of the player at the same time. Reproduction in metal made by Mr. J. D. Blaikley. Originals, discovered by Mr. Flinders Petrie, when excavating in Egypt in 1890, are now at Oxford, England. They were examined in Mr. Petrie's presence and with his assistance, and fac-similes in brass tubes were made, of which these are copies.¹

Length of 1649, 1 foot 6 inches; of 1650, 1 foot $5\frac{3}{4}$ inches.

Double pipes of a similar character are still used in Egypt and called *Zummarah* and *Arghoul*.

2634. ZUMMARAH. Reed pipe. Two tubes of rush bound together with waxed cord and fitted with beating reeds. Six finger-holes in each pipe. Modern.

Length, 9 inches.

¹ For details respecting scales and method of blowing, etc., see papers by Mr. Southgate, in "Proceedings of the Musical Association," London, 1890-91. Thanks are due to Mr. J. D. Blaikley, of London, for information about these instruments.

2664. WAR HORN. A slightly conical tube of cast bronze expanding into a small bell. Reproduction from Egyptian wall-paintings.

Length, 1 foot 10½ inches. Diameter of bell, 3¾ inches.

CLASS III. VIBRATING MEMBRANES.

1251. DRUM. Shell of pottery, the lower end terminating in a hollow tube, serving the purpose of a handle, the upper end covered with parchment. Modern.

Height, 9 inches. Diameter, 5 inches.

Similar to the *Daraboukkeh* still used in the East.

2665. KEMKEM. Tambourine. Shallow circular frame of wood covered with parchment. Reproduction from Egyptian wall-paintings.

Diameter, 8 inches.

CLASS IV. SONOROUS SUBSTANCES.

1250. SESHESH. Sistrum. A hoop of bronze, fitted on a bronze handle, with three bars of metal passing through holes in the sides of the hoop and moving to and fro when the instrument is shaken by the hand. The top of the instrument is decorated with the figure of a fox. c. First Century A. D.

Length, 8¾ inches.

The Sistrum was used in the worship of Isis, a cult which originated in Egypt, and was introduced into Rome just before the Christian Era. This specimen was found in the Tiber at Rome, and Prof. Lanciani, of Rome, certified it to be an original.

1599. SESHESH. Sistrum (Fragment). Part of the hoop and two bars only are left of this old instrument, which was also found in the Tiber at Rome.

Length, 2½ inches.

2662. SESHESH. Sistrum. A hoop of bronze fitted on a handle of same, with three bars of metal passing through holes in the sides of the hoop, on which are hung six small bells. The top of the hoops decorated with the figure of an animal. Reproduction.

Length, 10½ inches. Width, 5 inches.

1595. BELL. Antique Bronze. Hemispherical in shape and without ornament. Found in a mummy case.
Diameter, $\frac{3}{4}$ inch. Depth, $1\frac{1}{2}$ inches.
1365. CYMBALS. Two thin metal discs provided with central bosses and leather straps. Modern.
Diameter, 4 inches.

E U R O P E .

CLASS I. STRINGED INSTRUMENTS.

PREFACE

TO

CLASS I. STRINGED INSTRUMENTS.

DIVISION I. STRINGED INSTRUMENTS WITHOUT A KEYBOARD.

In the scale of musical development the first and highest place may well be assigned to the Stringed Instruments. Their value is indeed twofold, for whereas they are unsurpassed in their power of expressing the deepest emotions of the human heart, their practical utility is such that in every home they find a welcome and cheer many a weary worker with their concord of sweet sounds. But the Pianoforte, the Violin and the Harp, beautiful as they are in the graceful form and perfect mechanism of to-day, seem, as it were, but the creations of yesterday when the mind endeavors to traverse the ages which must have elapsed since first untutored man in the moment of leisure took his hunting bow, and learned to delight himself in the music of its tightly stretched string, plucking it with his finger, striking it with the arrow shaft, or rubbing it with the rough stick snapped from the forest tree. Here, however, is probably the origin of the stringed instrument, as it is still the practice of many uncivilized peoples of the present day; even the manner of producing the sound finds its counterpart in the three great sections of the class: (A) Plucked, (B) Struck, and (C) Bowed Stringed Instruments.

SECTION A. PLUCKED STRINGS.—In European examples there are here two distinct groups, with a third or intermediate group of hybrid character. On the one hand there are the instruments with "open" strings rising vertically from a sound-box, as in the Harp, a principle which is taken directly from the Hunting Bow, but has been perfected among Western nations by the addition of the front pillar or support, which enables the strings to be stretched at a much greater tension with a corresponding increase of tone.

The second group contains those instruments in which the strings are stretched horizontally over a short sound-box (representing the gourd resonator added to the hunting bow when used as a musical bow), and a long neck, upon which the fingers of one hand are placed and the strings "stopped" or shortened for the sound required. The proper position of the fingers is marked, and the resonance of the "stopped" string increased, by strips of gut, wood, ivory or metal attached to the flat surface of the neck, and technically known as "frets." The Mandoline and Guitar are the examples of this group now most generally known, having usurped the place of the Citterns and Lutes of a bygone age.

Between those two distinct groups—types of which are represented in the Buni (Harp) and Nofre (Lute) of the ancient Egyptian civilization, there is the intermediate or hybrid form in which the strings are stretched horizontally over a shallow, table-shaped sound-box, but the instrument is not provided with a neck, and by its "open" strings partakes of the character of the harp. This form is best represented by the Psaltery or, as it is called in its vertical shape, the Spitzharfe.

All the instruments of this section, except the Æolian Harp (the strings of which are vibrated automatically by a current of air), are plucked by the hand either directly by the fingers of the performer, or by means of a small piece of bone or wood, called a plectrum, held between the first finger and thumb.

SECTION B. STRUCK STRINGS.—An instrument very similar in shape to the Horizontal Psaltery is the Dulcimer, but from the method of playing it has been evolved the most used and probably the best-abused of the Keyboard Instruments—the Pianoforte. The Dulcimer differs from the Psaltery in being struck with two small hammers, held in either hand. This principle of producing vibration in the string by striking is, as has already been shown, no new idea, but the history of its employment in connection with the keyboard is most interesting.

SECTION C. BOWED STRINGS.—It is impossible to say when and where the first Violin bow was invented. The idea of producing sound by friction is widely diffused, even among the uncivilized races, though it may be that to Ravanaon, King of Ceylon about 5,000 years ago, came the original inspiration of substituting horse-hair for the rudely notched stick of his forefathers, and in his Ravanastron producing the first bowed instrument. From India, through Persia, Arabia, Northern Africa, and so, in the eighth century, with the Saracens into Spain, came the bowed Rebab or Rebec, and European nations soon learned the value of the bow, applying it to many of those instruments which hitherto had only been plucked by finger or plectrum. The Celtic Crwth, for instance, descended from the ancient Lyre and Rote, now became a bowed instrument. With the expansion of musical knowledge and greater dexterity in the use of the bow, it was found advisable to alter the low, flat bridge and rounded outline of the older instruments. The strings, attached to the lower end of the sound-box either by small pins or a tail-piece, were passed over a high curved bridge, on either side of which the original outline of the instrument was broken by incurvations now known as the waist, or centrebouts, which enables the bow to pass freely over all the strings. The back was made flat, probably for the convenience of the player, although the old rounded shape in the end reasserted its superiority, and survives in the molded back of the Violin.

Although the bowed section is probably the last in date of invention, yet to it, of all stringed instruments, was first applied a rudimentary form of keyboard. This is seen in the Organistrum and Schlüssel-Fidel (the modern Nyckelharpa). The first of these is figured in manuscripts and sculptures of the ninth and tenth centuries. The strings are stopped by slips of wood or tangents, attached to transverse wooden sliders, pressed by the fingers. In the Schlüssel-Fidel the ordinary bow is used; in the Organistrum, or, as it was afterward called, Vielle, Lyra Mendicorum, or Hurdy-Gurdy, the bow is superseded by a rosined wheel, placed beneath the strings and rotated by a handle at the end of the instrument.

DIVISION II. STRINGED INSTRUMENTS WITH A KEYBOARD.¹

SECTION A. PLUCKED STRINGS.—In the fourteenth century keyboard mechanism was attached to the Horizontal Psaltery, the end of the balanced key, which seems to have been adopted from the organ, carrying a vertical strip of wood, called a "jack," furnished with a small plectrum of metal, hard leather or quill. On depressing the key by the finger the vertical "jack," is raised, and the plectrum plucks the string. On removing the finger the "jack" drops, but the plectrum passes the string without sounding it, as it is fixed to a pivoted tongue of wood, kept in position for the upward stroke by a spring at the back. The Keyed Psaltery became the parent of some of the most popular instruments of the Middle Ages—the Spinnet, the Virginal and the Harpsichord, which only yielded, owing to their want of expression, to the greater capabilities of the hammer-struck Pianoforte at the end of the eighteenth century.

SECTION B. STRUCK STRINGS.—The application of a keyboard to instruments of the Dulcimer or struck-string type

¹ For fuller information as to keyboard stringed instruments, the reader is referred to the introductory article, written by Mr. Hipkins for the separate Catalogue of Keyboard Instruments, and here reprinted on page xxiii.

is first found in an instrument called the Clavichord, developed, as is supposed, in the fourteenth century from the earlier Monochord. Here the striking hammer consists merely of a thin, wedge-shaped piece of brass, called a tangent, rigidly fixed to the end of the balanced key. This method or "action" seems to have been derived from the similar tangents of the Organistrum described under the previous division; and, as this latter instrument and the movable bridges of the Monochord used by theoretical musicians showed that notes of various pitch could be obtained from one string by shortening its vibrating length, several "tangents" of the Clavichord were made to strike on the same string or pair of strings, but at different points. In order to obtain the vibrating length necessary for a required note, the key of the instrument has to be kept down, and the tangent pressed against the string, forming as it does both hammer and bridge, while the part of the string not required is muted by a strip of cloth. Until the beginning of the eighteenth century the Clavichord remained in this primitive state, two, three, or even four "tangents" acting on the same string; and as this "stopping" principle appeared similar to the action of the fingers on the "frets" of the long-necked lutes and guitars, the Clavichord in this form was said to be "gebunden" or "fretted." In 1720, however, the instrument received a string (or pair of strings) for each chromatic note, and became "bundfrei" or "unfretted." Sebastian Bach first showed its capabilities and also the advantage of the tuning called "equal temperament" in the first twenty-four of his celebrated forty-eight Preludes and Fugues known as the "Woltemperirte Clavier." Delicate as the Clavichord is in expression, the volume of its sound is small and muted.

About the year 1710 Cristofori of Florence applied the falling or rebounding hammer to the Keyboard Stringed Instruments, and gave to the world the first Pianoforte. He appears to have gone directly to the Dulcimer for his idea and to have applied it, not to the existing Clavichord, but to the Plucked Harpsichord. By causing the hammer to fall away from the

string immediately after the stroke, he secured a volume of sound superior to that of the Harpsichord and, in the touch, a delicacy of expression equal to that of the Clavichord. Nearly a century passed, however, before the Pianoforte, with its improved form and mechanism, relegated its rivals to the lumber room and obscurity.

SECTION C. BOWED STRINGS.—Various attempts have been made to adapt a complete keyboard mechanism to instruments of the bowed section, but hitherto without success, the Nuremberg Geigenwerk of the early seventeenth century, the Clavecin-Viole and the Lyrichord of the eighteenth century, with many other attempts, having proved failures from a musical standpoint.

DIVISION III. STRINGED INSTRUMENTS WITH AUTOMATIC MECHANISM.

The adaptation of automatic movement to the stringed instruments is now receiving especial attention, and the Barrel Pianos of the last century are being quickly superseded by Æolas, Pianolas, Electric Pianos and other forms of machine-made music.

F. W. G.

SOME KINDRED INSTRUMENTS OF OTHER COUNTRIES¹

ILLUSTRATING

CLASS I. STRINGED INSTRUMENTS.

SECTION A. PLUCKED STRINGS.

HARP TYPE.

- Musical Bows* of Southern and Equatorial Africa, Nos. 1739 and 498, Gallery 28.
The *Pinaka* of India, No. 1536, Case 23, Gallery 27.
The *Kasso*, No. 496 ; *Ombi*, No. 544 ; *Nanga*, No. 1656, of the African Continent, Gallery 28.
The *Junk* of Arabia, No. 356, Case 29, Gallery 27.
The *Soung* of Burmah, No. 1465, Case 16, Gallery 27.
The lyre form of harp is found in the *Kissar* of Nubia, No. 541, Gallery 28.

PSALTERY TYPE.

- The *Ch'in* (*Kin*), No. 49, Case 4a, and the *Se* (*Che*), No. 2163, Case 4, of China, Gallery 27.
The *Koto* of Japan, No. 110, Case 5a, Gallery 27.
The *Kanoon* of India, Persia and Turkey, No. 330, Case 26, Gallery 27.
The *Marouvane*, No. 1490, of Madagascar, Gallery 28.

¹ As the instruments in Gallery 28 are subject to classification and rearrangements the case numbers have been omitted.

LUTE TYPE.

- The *Yueh ch'in*, No. 53, Case 2, and the *P'i-p'a*, No. 52, Case 2, of China, Gallery 27.
- The *Samisen* of Japan, No. 106, Case 7, Gallery 27.
- The various forms of *Sitar*, No. 47, Case 20, and *Vina*, No. 204, Case 23a, of India, Gallery 27.
- The *Tanbour* (*Tamboura*) of Persia and Turkey, No. 311, Case 24, Gallery 27.
- The *Saz* of Turkey, No. 331, Case 25, Gallery 27.
- The Lute (*E'Oud*), No. 374, Case 27, and the *Guenbri*, No. 360, Case 29, Gallery 27, of Arabia and Northern Africa.
- The *Kouitara* of Morocco, No. 401, Gallery 28.

SECTION B. STRUCK STRINGS.

DULCIMER TYPE.

- The *Sar Mundal* of Burmah and India, No. 284, Case 16a, Gallery 27.
- The *Yang Ch'in* of China, No. 18, Case 1, Gallery 27.
- The *Santir* of Persia and Turkey, No. 370, Case 26, Gallery 27.
- Compare with the *Tambourin à Cordes* (No. 999, Case 75, Gallery 26), the curious Philippine *Tambour*, in which the performer strikes a small square of wood suspended by strings over a hole pierced in the side of a bamboo tube (No. 2665, Case 40, Gallery 28).

SECTION C. BOWED STRINGS.

VIOLIN TYPE.

- The *Erh-h'sien* (*Ur-heen*) of China, No. 42, Case 2. Similar to the ancient Indian *Ravanastron*. Also the *Hu-ch'in*, No. 55, Case 2, Gallery 27.
- The *Kokiu* of Japan, No. 105, Case 6, Gallery 27.
- The *Thro* of Burmah, No. 1747, Case 15, Gallery 27.
- The *Sarinda* of India, No. 203, Case 20, and the *Sarangi* (with sympathetic strings), No. 200, Case 22a, Gallery 27.
- The *Kemangeh* of Persia, No. 325, Case 25, Gallery 27.
- The *Rebab* of Syria, No. 391, Case 27, Gallery 27.
- The *Apache Fiddles* of the North American Continent, Case 30, Gallery 28.

CATALOGUE

OF

CLASS I. STRINGED INSTRUMENTS.

DIVISION I. WITHOUT A KEYBOARD.

SECTION A. PLUCKED STRINGS.¹

GALLERY 26. CENTRAL CASE.

The other instruments in this case not described under this section will be found as follows :

Wind Instruments, Class II, Division II, page 196.

Class II, Division III, page 203.

Stringed Instruments belonging to other groups :

No. 2073, Class I, Division I, Section A, page 53.

Nos. 746, 2160, 1757, same section, pages 56, 57.

No. 2430, Class I, Division II, Section A, page 89.

1087. TELYN, or WELSH HARP. Compass, five octaves, Japanese style. The sound-holes on the back of the instrument seem to be a later addition. The front pillar straight, with scroll recurved. 98 strings of gut, arranged in 3 rows, the outer rows diatonic, the middle row giving the sharps and the flats. Wales. 1775. Maker, John Richards, of Llanrwst. John Richards was a celebrated harp-maker of the 18th Century, and made instruments for blind Parry, a famous Welsh harper.

Height of pillar, 6 feet 6 inches.

1081. HARP. Body quadrangular, the sound-board pierced with 6 small holes, the lower surrounded with pierced decoration. The front pillar straight, the scroll formed in the shape of a lion's

¹ See Preface to Stringed Instruments, page 12.

head. 34 strings of gut. Savoy. 18th Century. Used by traveling Savoyards to accompany their songs.

Height of pillar, 4 feet 7½ inches.

2705. HOOKED HARP. Body quadrangular, curving backward, the sound-board without holes, but decorated with six small circular designs in black. The curve finished in an ornamental scroll, a brass medallion on either side. Straight round pillar, grooved and decorated in black. Four claw feet. Thirty-six gut strings. On the curve are 9 brass hooks or crotchets, by turning which the strings passing over them are raised a semi-tone. This invention, which dates from about 1700, was the first attempt to apply mechanism for producing semi-tones on the diatonic harp. Inscribed "Martin Eggert in Wertingen." Germany. Early 18th Century.

Height of pillar, 5 feet 4 inches.

1712. HOOKED HARP. Body quadrangular, sound-board having 6 small holes. Front pillar flat and slightly curved. 32 strings of gut. On the curve, 21 hooks for raising the strings a semi-tone. Tyrol. 18th Century.

Height of pillar, 4 feet 2 inches.

2360. HARP. Body quadrangular, having eight small pierced roses. Front pillar straight, the head in the form of a simple scroll. 34 strings of gut. The curve bearing 9 finger-pieces, which act in a way similar to hooks, raising the strings, by the side of which they stand, a semi-tone. France. 18th Century.

Height of pillar, 4 feet 9½ inches.

1085. HARP. Body formed of 9 strips of wood, resting on 3 claw feet, sound-board having 6 pierced roses, and ornamented with paintings in flowers and Cupids with musical instruments. Front pillar straight, with gilt decoration. The scroll ornamented with garlands of flowers in gesso work, the curve painted with flowers and butterflies. 36 strings of gut. At the base of the instrument are 7 pedals, which act by long levers and rods working through the hollow front pillar, raising each string a semi-tone by drawing it down over a small bridge by means of little hooks. France. c. 1800.

Height of pillar, 5 feet 1 inch.

2295. HARP. Body formed of 7 strips of wood, painted blue, resting on 4 claw feet and having at the back 5 oblong sound-holes (no swell shutters). The sound-board plain, without holes.



No. 2295.
French Harp.
Page 20.



No. 1706.

Brian Boiroimhe Harp.

Page 21.

Pillar straight, moulded and decorated in Corinthian style, the head bearing 3 medallions in brass, representing dancing girls with wreaths and stars, also in brass. 42 strings of gut. At the base of the harp 7 pedals, working by rods through the front pillar, and raising the strings a semi-tone by drawing them down on small bridges by means of little hooks. France. Late 18th Century. Maker, Naderman, Paris. Naderman perfected the action of the first pedal harp, invented by Hochbrücker.

Height of pillar, 5 feet 7 inches.

1567. PORTABLE HARP. Semi-circular body, painted yellow, with trefoil ornamentation, and having at the back 4 oblong sound-holes. Upright pillar. 30 strings of gut. The semi-tones formed by turning small finger-pieces of flat brass against the strings, as in the hooked harps. England. Late 19th Century. Maker, Morley, London.

Height of pillar, 3 feet 8 inches.

1235. DOUBLE HARP. Chromatic. Body of maple. The back of the body 3-sided, with 8 oblong sound-holes; the sound-board double, decorated with gilt scroll-work. No pedals. Two straight pillars arranged in X-shape, having at their crossing a boss, ornamented with gilt gesso work; the heads decorated with similar work. The left-hand curve carries 45 strings of gut for the naturals and the right-hand curve carries 33 strings of gut for the sharps and flats, arranged in groups of 3 and 2, as in the piano. U. S. A. Late 19th Century. Maker, H. Greenway, Brooklyn.

Height of pillars, 5 feet 6 inches.

This form of harp was introduced about the year 1895 into America by Mme. La Roche.

- 1706¹. IRISH HARP. Brian Boiroimhe Harp. Formerly strung with wire. The original made of bog oak or willow, ornamented with incised lines and circles. Front pillar bent. The head bearing originally 2 large crystals. 29 strings of wire. The sound-board pierced in front with 4 small holes. Reproduction. The original supposed to have been the harp of Brian Boiroimhe, the famous Irish monarch who reigned in the year 1001, is in the Trinity College Museum, Dublin.

Height, 3 feet 2 inches.

¹ This interesting reproduction (No. 1706), together with the following (No. 1707), was obtained through the kindness and courtesy of Mr. T. H. Longfield, of Trinity College Museum, Dublin.

1707¹. IRISH HARP. Dalway Harp. The original, of which only two pieces remain, the pillar and the curve, was made of yew and sawallow. The sound-board (restored after that of the preceding Brian Boiroimhe Harp) and curved pillar bear designs in incised work, with coat of arms and the date 1621. Where the harmonic curve joins the sound-board is a carving of an animal's head; the curve itself bears representations of dragons, serpents and other monsters, with many mottoes. 45 strings, with 7 additional strings added, apparently at a later date. Ireland, 1621. Maker, Donatus, son of Thaddeus. Reproduction. Original in the Museum of Trinity College, Dublin.

Height, 3 feet 9 inches.

This is a restoration of the "Dalway Harp," so called from its having been in the possession of that old Antrim family for a considerable number of years. The harp, as shown in the cast, was restored by the late Dr. Robert Ball, former Curator of the Trinity College Museum, Dublin. The restored portions have been colored with a uniform tint, so as to show distinctly the portions that are original: the remaining fragments are of great interest, not only on account of their elaborate and tasteful ornamentations, but also from their being in great part covered with Latin and Irish inscriptions. From these inscriptions we learn that the harp was made for one of the Desmond Fitzgeralds; namely, John McEdmond Fitzgerald, of Cluain (Cloyne), whose arms are carved on the front of the fore-pillar, surmounted by the arms of England. The maker's name is also given—"Donatus Filius Thadei," with the date 1621, and in the Irish language and letters the names of the servants of the household.

The translation of the Irish inscriptions by Professor O'Curry is as follows:

"These are they who were servitors to John Fitz Edmond (Fitzgerald) at Cluain (Cloyne) at the time that I was made, viz.: The Steward there was James Fitz John; and Maurice Walsh was our Superintendent; and Dermot Fitz John, Wine Butler; and John Ruadhan was Beer Butler, and Philip Fitz Donnel was Cook there, Anno Domini 1621. Teige O'Ruase was Chamberlain there, and James Russell was House Marshal; and Maurice Fitz Thomas and Maurice Fitz Edmond; these were all discreet attendants upon him. Philip Fitz Teige Magrath was Tailor there; Domchadh Fitz Teige was his Carpenter—it was he that made me. Giollapattrick MacCridan was my Musician and Harmonist; and if I could have found a better, him should I have, and Dermot MacCriden along with him, two highly accomplished men, whom I had to nurse me. And on every one of these may God have mercy on them all."

"Besides the Irish inscriptions there is, in large Roman letters, near the figure of a Queen, at the end of the harmonic curve: (TE) IGE ET EB ME FIERI FECERUNT. . . . EGO SUM REGINA CITHARARUM. Under the Royal Arms are those of Sir John Fitz Edmond Fitzgerald, of Cloyne, with those of his wife, the Hon. Ellen Barry, daughter of Viscount Butterant. He was married in 1611, and died in 1640. The mottoes under the

¹ See note on preceding page.



No. 1707.

Dalway Harp.

Page 22.



Arms of the O'Neil Family.

Dalway Harp.

No. 1707. Page 23.

arms appear to be, 'Virescit vulnere virtus,' 'Boutez en avant.' Upon the edge of the bow were Latin inscriptions (now partly lost); these remain: 'Plecto vinco rego . . . monstra viros. Musica Dei donum . . . distractes solatur musica mentes, ut sonus . . . transit sic gloria mundi Vincit veritas.' Upon the inside of the bow, in large letters, is inscribed 'Donatus Filius Thadei me fecit. Spes mea in Deo,' i. e., 'Domchadh Fitz Teige, the carpenter, made me. My hope is in God.'"¹

A badge with the arms of O'Neil was originally attached to this harp. It was stolen from Trinity College Museum and sold, fastened to a coat of mail said to have been found in Phoenix Park, Dublin. This coat of mail was shown at the Olympia Exhibition, in London, where the badge was recognized by Mr. Longfield, of Trinity College Museum, as being the one for which he had been searching for years, and it was restored to its original place on the harp.

CASE 64.

(East Wall.)

1572. MINNESINGER'S HARP. A shallow quadrangular body of wood, the sound-board having 4 holes bearing pierced ivory roses. Front pillar curved and inlaid, the curve bearing 21 gut strings. Germany. 15th Century. Reproduction. Original in the Bavarian Museum, Munich.

Height of pillar, 2 feet.

2567. MINSTREL'S HARP. Crescent-shaped model. A shallow, quadrangular body of wood, a carved lion's head taking the place of the scroll. 8 gut strings, no front pillar. This instrument seems to be a fantastic reproduction of the boat-shaped Oriental harp, as it lacks the true Western shape with its supporting pillar. France. 18th Century.

Height, 2 feet 6 inches.

1084. SMALL PORTABLE HARP. The body formed of 7 strips of wood standing on 4 claw feet. At the back, 2 oblong sound-holes. Sound-board painted with musical subjects. Round and straight front pillar, enriched with mouldings, the curve bearing 15 gut strings. No mechanism. England. 18th Century.

Height of pillar, 2 feet 2½ inches.

2293. PORTABLE HARP. Quadrangular body of inlaid woods, the sound-board pierced with 4 holes and painted with foliage. Straight pillar twisted and decorated in gilt, the head

¹ Cf. Professor Eugene O'Curry's Lecture on "The Manners and Customs of the Ancient Irish," edited by Dr. W. K. Sullivan, 1873. Vol. III., pp. 291-293.

formed as a scroll. Curve originally bearing 15 strings. The instrument stands on a square base, attached with gilt moulding. Germany. 19th Century.

Height of pillar, 2 feet 2 inches.

CASE 64 a.

1082. SMALL PORTABLE HARP. Semi-circular body, painted red, the sound-board painted in the same coloring, with gilt edges. The front pillar curved in a way similar to that of the Irish harps. The curve, bearing 32 strings of gut, is furnished with an ingenious mechanism for raising each string a semi-tone. A small lever, worked by an ivory button, moves a little hook, which presses on the string and forms a new bridge. France. c. 1850. Maker, Louis Joseph Domeny.

Height of pillar, 2 feet 3 inches.

1088. PORTABLE HARP. A quadrangular body, painted and decorated in gilt. Round, upright pillar with gilt capital surmounted with a crown, the curve bearing 27 gut strings. Sound-board painted with floral decoration, with 4 sets of small sound-holes. There is no mechanism attached for producing semi-tones. Europe. Middle 18th Century.

Height of pillar, 3 feet 8 inches.

CASE 65 a.

1080. ZITHER HARP. A sound-box of light wood, decorated with conventional designs in black, placed behind the strings. The front with a straight, round pillar and a small curve carrying 17 metal strings. Europe. 19th Century.

Height, 2 feet.

1079. HARPANETTA. A lyre-shaped body with large base, which forms the sound-board; sides inlaid. An oblique bridge bears 20 gut strings, which are attached to pegs at the top of the instrument. The peg-bar is adorned with 2 carved heads, and in the centre a representation of the sun; the bar is enlarged in order to contain the action for making the semi-tones, which is similar to that used in the Hochbrücker harps, the string being pulled down by a small hook; in this case by means of a hand lever. France. Middle 18th Century.

Height, 2 feet $3\frac{1}{2}$ inches.

1078. **PORTABLE HARP.** Harp-shaped instrument resting on a hollow base forming the sound-box. Attached to the box is a curved bridge bearing 29 gut strings. A round, straight pillar of maple. Attached to the curve is the mechanism for raising each string a semi-tone, consisting of rows of discs, each disc having 2 brass studs and levers; when the lever is pressed the string is nipped in a way similar to that employed in the modern single-action harp. France. 19th Century.

Height, 2 feet 11 inches.

2706. **PORTABLE HARP.** A harp-shaped body resting on a shallow rectangular base forming the sound-box. Two slender uprights, one on either side, are connected at the top by a curved cross-bar in which are inserted 15 iron pegs carrying as many wire strings. Across the lower edge of the sound-box is a metal bridge over which the strings pass to the base where they are fastened. Ireland. 19th Century.

Height, 1 foot 9 inches. Width, 12 inches.

CASE 65.

2544. **PORTABLE HARP.** A quadrangular body, the sides formed of 3 strips of wood, the back flat, with 3 sound-holes and standing on 3 small feet. Straight, round pillar, painted like the body. The curve, with yellow scroll pattern on a red ground, ornamented by a carved scroll at the point where it is attached to the pillar. 15 gut strings without mechanism. France. 18th Century.

Height of pillar, 2 feet 8 inches.

2529. **PORTABLE HARP.** A quadrangular body, the sides covered with an imitation of tortoise-shell; no sound-holes. Straight, round pillar, the head terminating in a scroll surmounted by the figure of a recumbent lion. 21 gut strings, no mechanism. Europe. 18th Century.

Height of pillar, 2 feet 11 inches.

1083. **PORTABLE HARP.** The body semi-circular, painted green, with gilt shamrock decoration. At the back, 6 long, narrow sound-holes. The sound-board decorated in a similar way. The pillar bent as in the old Irish harps. The curve bearing 34 gut strings and disc mechanism for raising each string a semi-tone, similar to that employed by Erard, but worked in this instrument by 7 small levers or ditals, tipped with ivory, placed in the inner curve of the front pillar. Ireland. 1819. Maker, John Egan.

Height, 3 feet 1 inch.

1076. **HARP LUTE.** A lute-shaped body of wood, painted black, with 2 narrow sound-holes at the back. The sound-board decorated with gilt border and musical subjects, having a single round sound-hole. Attached to a bridge fixed to the front are 12 strings, 7 of them running over the short neck, provided with frets, the rest attached to the upper part of the instrument, which resembles the curve of a harp and which is supported by a small carved pillar resting on the body of the instrument. 3 pairs of finger-pieces are placed over the lower strings, and when turned produce the semi-tones. A lever at the back of the instrument drew down the 6th string upon the finger-board by a small hook (now missing), similar to that used by Hochbrücker. A second lever at the back, acting on the 8th and 9th strings, raises their pitch a semi-tone. England. c. 1800. Maker, Light, London.

Length, 2 feet 10 inches.

CASE 66.

1012. **LUTE.** A pear-shaped body composed of 25 narrow strips of dark wood, with inserted ivory lines. The sound-board decorated with ivory edging, technically termed "lace," and having a rose of geometrical pattern cut in the natural wood. The finger-board of ebony, originally bound with gut frets, now furnished with 12 frets of ivory and ebony. Peg-box placed at right angle to the neck and originally having 14 pegs, now furnished with 6. The bridge attached to the sound-board carries 6 strings, originally 7 pairs. Germany. 16th Century. A written label bears the date 1596; by its side a printed label showing that it was repaired in 1694 by Matthias Hummel, of Nuremberg.

Length, 2 feet 5 inches. Width, 12 inches.

Drexel Collection.

1529. **CALASCIONE.** A pear-shaped body of wood, the back composed of 15 strips of ivory with inserted black lines; the sound-board, edged with ivory and inlaid with mother-of-pearl, has a sunk rose in gilt. The long finger-board, inlaid with ivory and ebony, engraved with scroll pattern, the back decorated with ebony and ivory lines, and bound with gut frets. The scroll in the form of a female head. 3 pegs. An ivory bridge attached to the sound-board carries 3 gut strings. Italy. 18th Century.

Length, 3 feet 3 inches.

1023. LUTE. A pear-shaped body of wood, inlaid with mother-of-pearl, the neck mounted with ivory. 16 strings, arranged in pairs. Lombardy, Italy. 18th Century.
Length, 2 feet $7\frac{1}{2}$ inches. Width, 1 foot $2\frac{3}{4}$ inches.

CASE 66 a.

1024. LUTE. Long pear-shaped body, composed of 23 strips of ivory and dark wood placed in alternate lines, the sound-board edged with ivory and having 3 roses of geometrical pattern cut in the natural wood. The original neck has been lost and has been replaced by a short guitar neck and head carrying 6 strings. Italy. 16th Century. Within the body are two written labels, "Frankfort, 1627," and "Arranged for a guitar by F. L. Lohstoeler, 1807." Notwithstanding these labels this instrument appears to be of Italian manufacture, the triple rose being very similar to that employed by Tieffenbrücher.

Length, 3 feet 4 inches. Width, 1 foot 2 inches.
Drexel Collection.

1008. LUTE. Pear-shaped body, consisting of 9 strips of wood, alternately black and white. The sound-board having a pierced rose cut in the original wood. Ebony finger-board. Peg-box placed at right angle. 12 pegs. A thick ebony bridge attached to the sound-board carries 6 pairs of strings. Germany. 16th Century.

Length, 2 feet $7\frac{1}{2}$ inches. Width, 12 inches.

1009. CALASCIONE. Pear-shaped body, formed of 20 strips of cedar wood, with inserted black lines; the sound-board having a decorated paper rose. Neck black wood, bound with gut frets. Scroll in the form of a dog's head. 3 pegs. An ebony bridge attached to the sound-board carries 3 wire strings. Italy. 17th Century. Signed, "Costa Agostino di Braccia, 1622."

Length, 4 feet $9\frac{1}{2}$ inches. Width, $11\frac{1}{4}$ inches.

CASE 67.

1035. THEORBO. Pear-shaped body, formed of 26 narrow pieces of light and dark wood, alternately inlaid. The sound-board having a geometrical rose, surrounded with a broad black band inlaid with mother-of-pearl, studded with colored stones. The finger-board inlaid with ivory, engraved with representations

of musical Cupids, the back ornamented with ivory and black lines and bound with gut frets. 2 peg-boxes, the first containing 8 pegs, the second 6 pegs. The head ornamented with a mother-of-pearl rose. An ebony bridge attached to the sound-board carries 14 strings, 8 of which pass over the finger-board and 6 open strings to the upper peg-box. Italy. 18th Century.

Length, 3 feet 8 inches. Width, 12 inches.

2199. **ARCHLUTE.** Pear-shaped body, composed of 27 strips of stained wood, inlaid with black lines. The sound-board having a paper rose, surrounded by an ornamental band of inlaid ebony and ivory. The neck and finger-board inlaid with ebony and ivory and having a running design of inlay ornament. The back inlaid with ebony and light wood lines and bound with frets of gut. Two peg-boxes, the lower containing 10 pegs and the upper 6. A long ebony bridge attached to the sound-board. 16 strings, 10 of which pass over the finger-board, the others open strings to the upper head. Italy. 17th Century.

Length, 4 feet 7 inches. Width, 1 foot 3 inches.

The Archlute, being an ordinary lute furnished with an additional peg-box in order to give greater length to the bass strings, was used for instrumental purposes. The Theorbo, a very similar instrument, but generally smaller, for accompanying the voice.

2141. **CHITARRONE.** Small pear-shaped body, consisting of 25 narrow strips of moulded wood, with black lines inserted. The sound-board edged with inlaid ivory in ornamental leaf pattern. Geometrical rose, surrounded by an inlaid border. Finger-board of ebony, inlaid with conventional designs in ivory. The lower head containing 11 pegs; the upper head with 5 pegs, placed on a long neck, inlaid with ivory, and terminating in a carved human head. 11 metal strings pass over the finger-board and 6 open metal strings run by the side and are attached to a long bridge fixed to the sound-board. Italy. 17th Century.

Length, 5 feet 1 inch. Width, 11½ inches.

The Chitarrone, which is an Archlute with an elongated neck, was used in the orchestra. It was often strung with wire instead of gut strings.

CASE 67 a.

1022. **CHITARRONE.** A large pear-shaped body, composed of 22 narrow strips of stained wood, the sound-board having a sunk paper rose, the neck inlaid at the back with fantastic designs in ivory. Two peg-boxes, the first containing 11 pegs, the second placed on a long neck above the first, having 6 pegs. The head



a.

b.

c.

Case 67.

a. No. 1035. Theorbo....page 27 | *b.* No. 2141. Chitarrone....page 28
c. No. 2199. Archlute.....page 28

terminates in a bold scroll. An ebony bridge attached to the sound-board carries 17 strings, 11 of which pass over the finger-board to the first, and 6 long, open bass strings to the upper box. Italy. 17th Century.

Length, 6 feet 6 inches. Width, 1 foot $4\frac{1}{4}$ inches.

1020. CHITARRONE. A large pear-shaped body, composed of 29 strips of light wood, with inserted black lines, the sound-board having a geometrical rose surrounded by a black band inlaid with ivory. The finger-board inlaid with ebony and ivory and having in the centre a plaque representing a village scene. The back inlaid with ivory and ebony strips, and bound with gut frets. Two peg-boxes, the lower one containing 11 pegs, the upper, placed on a long neck, containing 6. The scroll formed to represent a human head. An ebony bridge, terminating in ivory claws, carries 17 strings, 11 of which pass over the finger-board to the first peg-box, the other 6 open strings to the upper peg-box. Italy. 17th Century.

Length, 6 feet 3 inches. Width, 1 foot $2\frac{3}{4}$ inches.

310. TORBANE. A form of Theorbo. Pear-shaped body, formed of 11 broad strips of wood. The sound-board, edged with inlaid purfling, has an open sound-hole surrounded by an inlaid band. The broad neck originally bound with gut frets. 2 peg-boxes, the lower one containing 12 pegs, the upper 4. On the right-hand side of the instrument, 14 pegs are inserted into a block placed immediately under the sound-board. A long ebony bridge traversing the whole width of the instrument carries 30 strings, 14 of them tuned diatonically and passing to the pegs placed in the upper part of the body, 12 accompanying strings passing over the neck to the first peg-box, 4 open bass strings to the upper box. Russia. 19th Century.

Length, 3 feet $10\frac{1}{2}$ inches. Width, 1 foot $2\frac{1}{2}$ inches.

CASE 68.

1025. MANDORA. A deep pear-shaped body, formed of 19 narrow strips of dark wood, with ivory lines inserted. The sound-board, edged with ebony and ivory, has a sunk rose, the hole surrounded with a broad black band inlaid with mother-of-pearl and ivory. A broad neck of ebony, inlaid front and back with ivory and tortoise-shell, having 7 brass frets and 7 additional frets in ivory on the sound-board. Flat head with pegs inserted from behind. Front and back inlaid with 2 broad bands of tor-

toise-shell and 2 broad ivory bands engraved with conventional design. 16 pegs, originally furnished with wire strings passing over an ebony bridge and fastened to ivory pegs at the bottom of the instrument. An inlaid tortoise-shell plaque prevents the plectrum, with which it is struck, from damaging the sound-board. Italy. 18th Century.

Length, 3 feet 1 inch. Width, 1 foot $2\frac{3}{4}$ inches.

1007. MANDORA. A deep pear-shaped body, formed of 9 broad strips of black and yellow wood, alternately placed. The sound-board edged with ivory and ebony purfling, pierced with an open sound-hole surrounded by a broad band of inlaid ebony and ivory. Ebony finger-board bearing 17 brass frets. The peg-box curved and finished with a carved representation of a woman's head. 12 pegs. France. 18th Century. Maker, Henocq (the younger), Master Luthier of the Duchess of Bourbon. 1778.

Length, 3 feet. Width, $11\frac{1}{4}$ inches.

1026. PANDOURA. A species of lute. The body formed of the back of a turtle, the sound-board of wood, inserted and painted with scroll-work and grotesque figures. The neck of wood, the finger-board bearing 16 metal frets. The head placed at an angle and having 8 pegs inserted from behind. 4 pairs of gut and silk overspun strings pass over a movable bridge and are attached, through small holes, to the natural shell. At the bottom of the sound-board, a painted letter "A." Italy. 18th Century.

Length, 2 feet 9 inches. Width, 1 foot 2 inches.

1061. PANDURINA. Small pear-shaped body, formed of 19 narrow strips of light wood with black lines inserted. The sound-board, edged with ivory, has geometrical rose surrounded by a black band inlaid with mother-of-pearl. Ebony finger-board, the back of the neck inlaid with ivory and ebony, originally bound with gut frets. Open peg-box with 10 pegs. The scroll terminating in a flat plaque of ivory. A small ebony bridge attached to the sound-board originally carried 5 pairs of strings. Italy. 18th Century. Signed "Plisbel, Milan, 1715."

Length, 1 foot $7\frac{3}{4}$ inches. Width, $6\frac{1}{4}$ inches.

The Pandurina is a small lute.

2229. PANDURINA. A species of treble lute. A small pear-shaped body with sound-board (renewed), decorated with 7 holes arranged in the form of a rose. The neck inlaid with ebony and ivory, with inlaid and engraved finger-board furnished with brass frets. Open peg-box faced with ivory and ebony, the head

terminating in a flat piece of ivory. 8 pegs. A bridge attached to the sound-board carries 4 pairs of strings. Italy. 18th Century. Signed "Carlo Stephanini in Mantua, 1790."

Length, 1 foot 10 inches.

2228. PANDURINA. Pear-shaped body, the sound-board with one open hole. Finger-board inlaid with ivory plaque. Gut frets. Open peg-box. The head terminating in a flat piece of engraved ivory. 11 pegs of light wood. Small bridge attached to the sound-board carried 5 pairs and one single string. Italy. 18th Century.

Length, 1 foot 8 inches.

985. TANBOUR. A narrow triangular body, the sound-board pear-shaped and pierced with a small hole. A long neck bound with gut frets. No scroll. Four T-shaped pegs, from which originally were stretched 2 pairs of metal strings, passing over a small bridge and fastened to the bottom of the instrument. Greece. 19th Century.

Length, 2 feet 4 inches. Width, $3\frac{3}{4}$ inches.

351. TANBOURICA. A small triangular-shaped body, the sound-board having a pear-shaped outline and pierced with a small hole. The body and sound-board ornamented with floral designs burnt in the natural wood. Long, thin neck, no scroll. Two T-shaped pegs, formerly bearing 2 strings, which passed over a small bridge, and were fastened to the bottom of the instrument. Bulgaria. 19th Century.

Length, 2 feet $6\frac{1}{2}$ inches. Width, $5\frac{1}{2}$ inches.

The Tanbourica resembles the *Tanbour* used in Mohammedan countries, and is similar to the *Nofre* (see No. 1325, Egyptian Type Case, page 6) figured on the ancient Egyptian monuments.

1018. CAVONTO. Pear-shaped body, with truncate base composed of inlaid white and brown strips of wood, the sound-board pierced with an ornamental rose in an inlaid circle. A long neck of inlaid wood bound with frets of thin brass wire. A straight head having 6 T-shaped pegs. 3 pairs of wire strings passing over a movable bridge attached to ivory buttons at the bottom of the instrument. The sound-board edged with black and white purfling. Greece. 19th Century.

Length, 3 feet $1\frac{1}{2}$ inches.

1027. TANBOURITZA. Oval body, formed of natural wood, hollowed out from within, the body, neck and head being all in one piece. Sound-board pierced with three small roses and

edged with dark wood. Finger-board of white and black wood, with 11 metal frets. Flat head, with scroll turned toward the right-hand side. 4 pegs inserted in front. 4 metal strings passing over a movable bridge and attached to two small pegs at the bottom of the instrument. Roumania. 19th Century. Stamped "Tomayitkalcic Zagrer."

Length, 2 feet. Width, $4\frac{1}{2}$ inches.

For description of No. 1066 see Class V, page 244.

CASE 68 a.

1031. ARCHIMANDORA. A deep, pear-shaped body, formed of 21 strips of wood with dark lines inserted, the sound-board with a finely cut rose representing a lute-player, surrounded by a black band inlaid with mother-of-pearl. A long neck bound with gut frets. Peg-box placed at an oblique angle, containing 14 pegs tipped with ivory, the end of the scroll ornamented with a crystal cut with the representation of a man's head. 14 wire strings passing over a narrow bridge and attached to ivory pegs at the bottom of the instrument. Italy. 18th Century.

Length, 5 feet 1 inch. Width, 1 foot $1\frac{1}{2}$ inches.

1045. CAVACO. A shallow, round body, made from the end of a gourd, finely engraved with ornamental borders, and in the centre a tragic scene. On the sound-board a pierced rose with a circle inlaid with ivory. Finger-board inlaid with mother-of-pearl and ivory. 4 pegs with 4 strings passing over a small movable bridge and attached to the bottom of the instrument. Europe.

Length, 1 foot 4 inches.

1044. CAVACO. A small round body formed from a gourd, ornamented with line engravings representing grotesque figures, with ornamental bands of foliated design. The sound-board, edged with ivory, has a geometrical pattern surrounded with a broad black border, inlaid with mother-of-pearl. Ebony neck, bound with gut frets. Head reflex, as in the Pandurina. Open peg-box with 4 pegs, from which 4 gut strings originally passed over a small bridge to ivory pegs placed at the bottom of the instrument. Italy. 18th Century. Inscribed "Benedito Qualzatta, Rome, 1716."

Length, 1 foot $9\frac{1}{2}$ inches. Width, $5\frac{1}{2}$ inches.

2234. CAVACO. Body shaped like a fish, with fins, mouth and eye complete. Heart-shaped sound-hole, decorated with an inlaid border, the finger-board walnut, with 15 brass frets. Flat head, representing the tail of a fish, with 4 pegs inserted from the back. Four strings of gut attached by small buttons to a bridge shaped as a fish. Spain. 19th Century. Maker, Augusto Costa.
Length, 2 feet 3 inches.
1028. CAVACO. Round-shaped body, formed from the section of a gourd. Sound-board pierced with a single hole. Long neck, with 3 brass frets. Flat head with 4 pegs inserted from behind. Strings of twisted silk attached to a bridge fixed to the sound-board. Spain. 19th Century.
Length, 1 foot 7 inches.
1064. CAVACO. A small, round body of light wood. A thick neck surmounted by a round head nearly as large as the body. 4 wire strings. Europe. 19th Century.
Length, 10 inches. Width, $3\frac{1}{4}$ inches.
Drexel Collection.
1060. CAVACO. Oval-shaped body, formed of a section of gourd, the sound-board pierced with a single hole, surrounded by an inlaid band. Finger-board with 5 brass frets. Flat head, with pegs inserted from behind. 6 strings, similar to those of the guitar, attached to a small bridge fixed to the body of the instrument. Italy. 19th Century.
Length, 9 inches. Width, 4 inches.
314. BALALAÏKA. Triangular body, of very rude construction, the back formed of five strips of wood with flat base inserted. The sound-board with a single hole; the neck bound with gut frets. Flat head, placed at an angle and having 3 pegs inserted from behind. 3 strings passing over a movable bridge, attached to a button at the bottom of the instrument. Russia. 19th Century.
Length, 2 feet 3 inches. Width, $10\frac{1}{2}$ inches.
309. BALALAÏKA. Round body, formed of natural wood, hollowed out from within. Sound-board pierced with a single round hole, decorated with an inlaid circle. Long finger-board, having originally frets of gut. Flat head, placed at an angle. 4 pegs inserted from behind. 4 gut strings passing over a movable bridge, attached to a button at the bottom of the instrument. Russia. 19th Century.
Length, 2 feet 5 inches. Width, $7\frac{3}{4}$ inches.
This instrument is used by the Cossacks.

315. **BALALAIKA.** A triangular body, formed of natural wood bent to shape, with a flat bottom inserted. Sound-board with one hole, surrounded by an inlaid circle. Long neck bound with gut frets. The peg-box, which terminates in a scroll, has four pegs inserted at the side. Four strings passing over a movable bridge, fastened to a button at the bottom of the instrument. Russia. 19th Century.

Length, 2 feet 3 inches. Width of base, 8 inches.

1043. **MANDOLINE.** Shallow sound-box with slightly rounded back, consisting of a black, painted frame with a centre of light wood inserted. The sound-board circular in outline, edged with inlaid woods, and having a single hole with a metal rose. 14 metal frets. A flat head, crescent-shaped and bearing 8 pegs inserted from behind. 4 pairs of double strings pass over an ebony bridge and are attached to small pins at the bottom. Europe. 19th Century.

Length, 1 foot 5 inches. Width, 8 inches.

This form is sometimes known as the Gypsy Mandoline.

CASE 69.

1070. **MANDOLINE.** Small, pear-shaped body, formed of 21 narrow moulded strips of wood, with black lines inserted. The sound-board pierced with a circular hole, surrounded by a band of red wax, inlaid with ivory and ebony lines. Flat head, with 8 pegs inserted from behind. The head and back of the neck inlaid with tortoise-shell, with ebony and ivory lines. Ten metal frets. Four pairs of metal strings pass over a movable bridge and are attached to ivory pegs at the bottom of the instrument. The lower part of the sound-board, which slopes, decorated with mother-of-pearl. Beneath the strings a tortoise-shell plaque. Italy. 18th Century. Maker, Vincentius Vinaccia. Naples, 1770.

Length, 1 foot 11 inches. Width, 7 inches.

Drexel Collection.

The Mandoline, which is the present representative of the earlier *Mandirichen*, is much smaller than the Lute, and differs from it by having, as a rule, *wire* strings, struck with a plectrum or piece of tortoise shell, held between the fingers. It is used for melodic passages, whereas the Lute was mainly employed as an accompaniment. The heads of the more modern Mandolines are flat, resembling that of the Guitar, though some of the older provincial forms retain the open peg-box, characteristic of the Lute, and still used in the Violin.

1066. **MANDOLINE.** Pear-shaped body, formed of 13 narrow strips of ivory, inlaid with black and white lines and engraved with floral designs and representations of musical children. The sound-board, with a geometrical rose cut in ivory, surrounded by a broad, engraved ivory band. The finger-board, edged with ivory, bears an engraved plaque representing a rustic dance. A flat head with 10 pegs inserted from behind; five pairs of strings attached to an ebony bridge (now missing), fastened to the sound-board. Italy. 17th Century. Inscribed "Catastro Parochiali, Padova, 1630."

Length, 1 foot 10 inches. Width, 6 inches.

This is the form known as the Paduan Mandoline.

1069. **MANDOLINE.** Pear-shaped body, formed of 15 strips of dark wood, inlaid with white lines. The sound-board having a sunk rose, surrounded by a narrow black band inlaid with mother-of-pearl. Short, wide finger-board of ebony, edged with ivory, having 8 brass frets with 4 additional wooden frets on the sound-board. Flat head, inlaid with ebony, ivory and pearl, with 12 pegs inlaid with ivory. Six pairs of strings passing over a bridge and attached to 6 ivory knobs at the bottom of the instrument. The lower part of the sound-board, which slopes, decorated with floral design in mother-of-pearl. A tortoise-shell plaque inserted beneath the strings. Italy. 19th Century.

Length, 1 foot 10 inches. Width, 8 inches.

This is the form known as the Milanese Mandoline.

2110. **MANDOLINE.** A pear-shaped body, formed of 18 narrow strips of dark polished wood, inlaid with white lines, the sound-board with an oval sound-hole, surrounded by a black band inlaid with mother-of-pearl. Four strings, 2 gut and 2 silk, covered with metal, fastened to a bridge attached to the sound-board. Beneath the strings is an ebony strip, inlaid with white wood design. Italy. 19th Century. Maker, Alberto Olmi, Siena.

Length, 1 foot 10 inches. Width, $8\frac{1}{2}$ inches.

The strings in this instrument are tuned in a way similar to those of the Violin or Neapolitan Mandoline.

1068. **MANDOLINE.** Pear-shaped body, formed of 17 narrow moulded strips of wood, with inserted black lines. A single open sound-hole, surrounded with a broad band of red wax, inlaid with mother-of-pearl. Narrow neck inlaid with white lines. Ebony finger-board, with 10 brass frets and 5 additional frets of wood on the sound-board. Flat head, decorated with ivory inlaid design, having 8 pegs inserted from behind. Four pairs of strings passing over a movable bridge, attached to 4 ivory buttons at the bottom

of the instrument. The sloping part of the sound-board decorated with pearl. No shield. Italy. 18th Century. Inscribed "Giovanni Battista, Naples, 1712."

Length, 1 foot 10 inches. Width, $6\frac{1}{4}$ inches.

2140. MANDOLINE. Body pear-shaped, formed of 23 narrow moulded strips of tortoise-shell, with ivory and black lines inserted. The sides of the instrument elaborately decorated with tortoise-shell mouldings and floral paintings on a gilt ground. Sound-board with a single open hole, surrounded by a broad band of tortoise-shell and pearl inlay, decorated with gold. The finger-board similarly inlaid with 13 gilt frets. Flat head with 8 pegs inserted from behind. The head inlaid with mother-of-pearl, tortoise shell, and designs in gold. Four pairs of metal strings, passing over a small bridge, and attached to 4 gold pins at the bottom of the instrument. The lower part of the sound-board, which slopes, decorated with elaborate ornamentation in pearl, tortoise-shell and gold. A plaque, similarly decorated, inserted beneath the strings. Italy. 18th Century. Maker, Antonius Vinaccia. Naples. 1781.

Length, 1 foot 11 inches. Width, $7\frac{1}{2}$ inches.

Presented by Miss Marie A. Main, through Miss M. G. Schirmer, 1899.

1065. MANDOLINE. A pear-shaped body, formed of 18 narrow moulded strips of wood, with black lines inserted. The sound-board with a single open hole, surrounded by a broad band of red wax, inlaid with mother-of-pearl. The finger-board ivory, with 10 brass frets and 4 additional wooden frets on the sound-board. Flat head, decorated with ivory buttons and inlay, having 8 pegs inserted from behind. Four pairs of metal strings, which pass over a bridge, attached to ivory pegs at the bottom of the instrument. The sloping part of the sound-board inlaid with geometrical design in mother-of-pearl. A wooden plaque inserted beneath the strings. Italy. 18th Century. Inscribed, "Pietro, Fabricatore, Naples, 1780."

Length, 1 foot $9\frac{1}{2}$ inches. Width, 7 inches.

2149. MANDOLINE. Pear-shaped body, formed of nine broad strips of dark and light woods; the sound-board, ornamented with 2 inlaid circles of colored woods, has an oval sound-hole. A short neck, with long finger-board and 13 brass frets attached in the upper part to the sound-board. The head with tuning mechanism, consisting of 12 metal screw-pegs, each revolving a small brass wheel. Six pairs of strings passing to a crescent-shaped bridge attached to the sound-board. Italy. 19th Century.

Length, 1 foot $11\frac{1}{2}$ inches. Width, $8\frac{1}{2}$ inches.

This is also the Milanese form of Mandoline.

2474. MANDOLINE. Pear-shaped body, formed of 11 broad strips of polished wood, inlaid with black lines. The sound-board, with an oval hole surrounded by a black band, inlaid with mother-of-pearl. Ebony finger-board with 13 ivory frets. Open peg-box with 6 pegs. The scroll, terminating in an ornamental block, inlaid with mother-of-pearl. Six strings, 3 of gut, 3 of silk covered with wire, attached to an ornamental bridge fixed to the sound-board. Beneath the strings, a strip of dark wood inserted. Italy. 19th Century.

Length, 1 foot $8\frac{1}{4}$ inches. Width, $7\frac{1}{2}$ inches.

This is another form of the Sieneſe Mandoline, which is not now ſo much uſed. The ſtrings were tuned in a way ſimilar to thoſe of the Guitar.

1067. MANDOLINE. Pear-shaped body, formed of 13 strips of dark wood, inlaid with white lines. The sound-board edged with ivory, pierced with an open hole, surrounded with a narrow band, which also encircles a tortoise-shell shield inlaid with mother-of-pearl. Ebony finger-board edged with ivory, with 8 brass frets. Flat head, decorated with ivory lines, with 8 pegs inserted from behind. Four pairs of metal strings pass over a fixed bridge and are attached to 4 ivory buttons at the bottom of the instrument. The sloping part of the sound-board and also the upper part decorated with floral designs and pearl inlay. Italy. 18th Century.

Length, 1 foot 9 inches. Width, $5\frac{1}{2}$ inches.

1063. MANDOLINE. Pear-shaped body, formed of 11 broad strips of white and dark woods. Sound-board with a single open hole, decorated with concentric ebony lines. Finger-board ebony, with 13 metal frets, the lower part attached to the sound-board. Flat head, decorated with ivory buttons, with 8 pegs inserted from behind. Four pairs of metal strings passing over a bridge, attached to ivory buttons at the bottom of the instrument. Shield of wood inserted beneath the strings. Italy. 19th Century.

Length, 1 foot $10\frac{1}{2}$ inches. Width, $6\frac{3}{4}$ inches.

1062. MANDOLA. Pear-shaped body, formed of 25 narrow strips of wood, with inserted black lines. Sound-board edged with ivory, pierced with a single open hole, surrounded by a broad band of red wax, decorated with mother-of-pearl. Neck inlaid with black and white lines. The finger-board of tortoise-shell, with 10 brass frets and 4 additional frets of wood on the sound-board. Flat head, ornamented with ivory buttons and inlay, with 8 pegs inserted from behind. The strings, which pass over a movable bridge, attached to 4 ivory buttons at the bottom of the instrument. The sloping part of the sound-board inlaid with mother-of-pearl. Tor-

toise-shell shield beneath the strings. Italy. 18th Century.

Maker, Antonius Vinaccia, Naples, 1773.

Length, 2 feet 4 inches. Width, 8 inches.

The Mandola is the tenor mandoline.

2653. MANDOLINE. Miniature model. Pear-shaped body formed of 9 narrow strips of shell and pearl inlay, separated by silver lines. The finger-board and face of the instrument similarly inlaid. Four pairs of strings pass over an ivory bridge and are attached to four ivory buttons at the bottom of the instrument. Italy. 18th Century. Maker unknown.

Length, 8 inches. Width, 2½ inches.

This instrument was formerly owned by Adelina Patti.

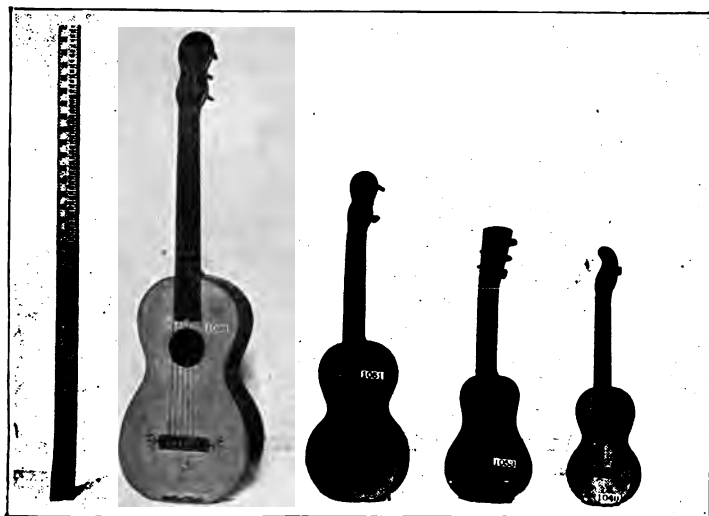
CASE 69 a.

FAMILY OF GUITARS.¹

The following four instruments, Nos. 1038, 1051, 1053, 1049, form the Guitar Quartet or Family.

1038. GUITAR. *Bass*. A shallow body of dark wood, with sound-board having a single open hole. On the finger-board 17 brass frets. A flat head, with 6 pegs inserted from behind, bearing 6 gut and over-spun strings, attached by wooden pins to a bridge fastened to the sound-board. Europe. 19th Century.
Length, 3 feet. Width, 11 inches.
1051. GUITAR. *Tenor*. Locally known as the *Machête Rajao*. A shallow body of brown wood; the sound-board with a single open hole, surrounded by an inlaid circle of colored woods. Finger-board with 12 brass frets. Flat head, with 5 pegs inserted from behind. Five strings attached to a bridge on the sound-board. Madeira. 19th Century.
Length, 2 feet 2 inches. Width, 8 inches.
1053. GUITAR. *Alto*. A shallow body of light wood, the sound-board with a single open hole, the neck fitted with 5 brass frets. A flat head, with 5 pegs inserted from behind, having 5 strings attached to a bridge on the sound-board. Madeira. 19th Century.
Length, 1 foot 9 inches. Width, 7 inches.
1049. GUITAR. *Treble*. Sometimes called *Machête de Braca*. A small flat body of dark wood, the finger-board with 17 brass frets. A flat head, with 4 pegs inserted from behind, carrying 4 strings attached to small pins fastened to the sound-board. Madeira. 19th Century.
Length, 1 foot 8 inches. Width, 5¼ inches.

¹ In the cases each family is outlined by yellow cording.



a.

b.

c.

d.

FAMILY OF GUITARS.

Page 38.

a. No. 1038. Bass.
b. No. 1051. Tenor.

c. No. 1053. Alto.
d. No. 1040. Treble.

1052. **MINIATURE GUITAR.** Similar to the preceding, but smaller. Italy. 19th Century.
Length, 10 inches. Width, $3\frac{1}{4}$ inches.
308. **GUITAR.** Pentagonal body, formed of five broad pieces of olive-wood. Sound-board of oblong outline, pierced with a single hole and decorated with a ring of dark wood. The neck without frets. The peg-box terminating in a reflex knob, and having 6 square-headed pegs inserted at the sides. Six strings passing over a brass bridge (missing) are attached by 6 square-headed pins to the bottom of the instrument. Russia. Early 19th Century.
Length, 2 feet 9 inches. Width, 8 inches.
1916. **BANDURRIA.** A shallow body of reddish wood; sound-board with oval outline and ornamented with paintings representing Spanish figures. A single open sound-hole. Twelve brass frets on finger-board. Flat head, with 12 pegs inserted from behind. Twelve gut strings attached to a bridge on the sound-board. Spain. 19th Century. Maker, Hermanos, Valencia.
Length, 1 foot 9 inches. Width, $10\frac{1}{2}$ inches.
1050. **MINIATURE GUITAR.** A shallow sound-box of dark wood. A single sound-hole with inlaid circle. The finger-board with 8 brass frets. Flat head, with 6 pegs inserted from behind, carrying gut and over-spun strings attached in the usual way. Italy. 19th Century.
Length, $12\frac{1}{2}$ inches. Width, 4 inches.
1048. **GUITAR.** A shallow body of light wood, with a flat back, edged with inlaid lines; the sound-board decorated with fretted scroll work. One open sound-hole. Ebony finger-board, with 18 brass frets. Open peg-box. The scroll replaced by a carved head. Patent screw mechanism carrying 6 gut and over-spun strings, attached by ivory pins to an ebony bridge fixed to the instrument. Europe. 19th Century.
Length, 3 feet. Width, $11\frac{1}{2}$ inches.
1029. **GUITAR.** *Machète.* A small, shallow sound-box, with incurved sides and narrow shoulders. The sound-board pierced with a single hole. The neck bound with gut frets. A flat head with 4 pegs inserted from behind, carrying 4 strings attached to a bridge on the sound-board. Spain. 19th Century.
Length, 1 foot $7\frac{1}{2}$ inches. Width, 4 inches.

CASE 70.

1338. GUITAR. A shallow sound-box with flat back and incurved sides. On the back a picture in gold and brown of a love scene entitled "L'Amour Ingenieux." The sound-board with an open hole surrounded by a broad inlaid band. Ebony finger-board originally edged with ebony and ivory, with 17 frets of ivory and metal. A flat head, with 6 pegs inserted from behind. Six strings pass to an ebony bridge (now missing), originally fixed. France. 18th Century. Maker, Bernard, Paris.

Length, 3 feet. Width, 11 inches.

1046. GUITAR. A shallow body of light wood, with flat sides inlaid with ebony and white wood lines. The sound-board bordered in a similar way, with an open hole, surrounded by a broad decorated band, the finger-board with inlaid lines and bound with gut frets. A flat head, with 10 pegs inserted from behind. Five pairs of gut and over-spun strings, attached by pins to an ebony bridge affixed to the sound-board. France. 1770. Maker, Guillaume.

Length, 3 feet. Width, 10 inches.

1047. GUITAR. A shallow sound-box with flat back, the sides incurved and in the upper part two shoulders similar to those of the Viol. On the back, burned in the natural wood, a representation of the Saviour on the Cross, a praying angel on either side, and below a scroll bearing the inscription, "Pat. Johannes fec. in Apsa, A. D. 1688." Around the sides, the following engraved motto: "Singe lieblich singe klaar zum lob des Herren imer dar." The sound-board edged with white and black inlay, having a round central hole decorated with geometrical roses. Ebony finger-board, with 9 ivory and 3 wooden frets. Flat head, with 6 pegs inserted from behind. Six gut strings attached to an ebony bridge fixed to the sound-board. Tyrol. 17th Century. Maker, Father John of Apsam.

Length, 3 feet 1 inch.

1040. CHITARRA BATTENTE. A deep body, the incurved sides composed of 3 broad strips of wood; the back, which is rounded, of 7 similar strips inlaid with black lines. The sound-board decorated with paper ornaments, and pierced with a single hole bearing a sunken rose surrounded by an inlaid circle. The finger-board has 10 brass frets and 5 additional frets of wood on sound-board. The head flat, inlaid with ivory and ebony, with 10 pegs inserted from behind. Five pairs of metal strings pass over a

bridge and are fastened to 5 iron pins at the bottom of the instrument, the lower part of the sound-board having a slope for this purpose. Italy. 17th Century.

Length, 2 feet 9 inches. Width, $8\frac{1}{2}$ inches.

Drexel Collection.

This Guitar was struck with a short plectrum of wood or bone, and was commonly used in Tuscany.

1041. CHITARRA BATTENTE. A deep body, the sides slightly incurved, formed of 8 narrow strips of brown wood inlaid with ivory lines, the back, of 20 strips similarly inlaid. Sound-board flat, pierced with a single hole, decorated with carved wooden rose and surrounded by an inlaid band of ivory. The back of the neck of ivory, inlaid with a foliated pattern in black wax. The finger-board with 12 ivory frets. A flat head, having 12 pegs inserted from behind, carrying 6 pairs of double strings, originally passing over an ebony bridge and attached to small pins at the bottom of the instrument. Italy. c. 1700.

Length, 2 feet 11 inches. Width, 10 inches.

1042. CHITARRA BATTENTE. A deep body, with sides slightly incurved, formed of 4 broad strips of dark wood inlaid with light lines, the rounded back of 9 strips similarly inlaid. Flat sound-board, with a single hole, decorated with a carved wooden rose, surrounded with a band of inlaid ivory. Neck without frets. The head flat, with 10 pegs inserted from behind. Five pairs of metal strings pass over an ivory bridge attached to the bottom of the case. Italy. 18th Century.

Length, 2 feet 7 inches. Width, $8\frac{1}{2}$ inches.

CASE 70 a.

1037. CHITARRA BATTENTE. A deep body, the incurved sides formed of 4 broad strips of wood inlaid with white lines, the rounded back of 13 pieces similarly inlaid. The sound-board sloping at the bottom, edged with inlay and decorated with painted ornaments in blue and red. A single sound-hole with sunken rose, surrounded with a circle of black wax, inlaid with ivory. The neck inlaid with 10 pegs inserted from behind. Five pairs of metal strings passing over a bridge and attached to 4 wooden pins at the bottom of the instrument. Italy. 19th Century.

Length, 2 feet 11 inches. Width, $10\frac{1}{2}$ inches.

1034. GUITAR. Narrow body of light wood with a flat back, the edges bordered with dark wood and inlaid lines; a single

open sound-hole similarly decorated. The finger-board with 17 brass frets; the head flat, fantastically shaped to represent a lyre. Ten pegs inserted from behind, carrying 5 pairs of gut and over-spun strings, attached to a bridge fixed to the sound-board. Spain. 19th Century.

Length, 3 feet 1½ inches. Width, 1 foot.

1033. GUITAR. Viola d'Arame. A narrow body of light wood, the sound-board with a single hole, decorated with inlaid woods of star pattern. Ten brass frets on the finger-board. A flat head, with 12 pegs inserted from behind, carrying 6 pairs of wire strings, passing over a movable bridge and attached by small brass pins to a longer bridge fixed on the sound-board. Madeira. 19th Century.

Length, 2 feet 10 inches. Width, 10½ inches.

The Guitar is known in the Spanish Possessions as the "*Viola Francesa*."

1075. HARP GUITAR. Instrument in the form of a small harp, the sound-box forming the base, and sloping sides of light wood, inlaid with ivory and pearl studs. Three sound-holes, one oval, immediately above the bridge, the second F-shaped, in the upper part of the instrument, and a third elliptical, placed in the side. On the pillar an ebony finger-board with 24 metal frets; the curve, which ends in an ornamental gilt leaf, fitted with six ivory pegs inserted from behind immediately above the finger-board, having 3 gut and 3 over-spun strings attached by ivory pins to a small bridge, fixed to the sound-board as in the ordinary guitar. The smaller part of the neck fitted with 13 brass pins turned by a key, having gut strings attached by ivory pins to a long bridge fixed obliquely across the lower part of the sound-box. Italy. 19th Century.

Length, 3 feet 1 inch.

CASE 71.

1515. HARP GUITAR. Trapeze-shaped body, formed of light wood with inlaid black lines, at the back a single oval sound-hole similar to that in the harp. The sound-board edged with ebony and ivory inlay, pierced with a round hole, surrounded by a broad black band, inlaid with ivory lines. Broad ebony finger-board with 12 ivory frets. Flat head, decorated with a gilt head, encircled by a single rose. Seven brass pins inserted from behind and tuned with a small key. Seven strings, the first 3 of gut, the remainder of silk over-spun with wire, fastened by ebony pegs to an



ornamental bridge inlaid with ivory and pearl. Behind the neck two small buttons, by means of which the 4th and 6th strings are raised a tone. A similar button (now missing) formerly raised the 5th string a semi-tone. France. c. 1800. Maker, Levien.

Length, 2 feet 9 inches. Width, 1 foot 1½ inches.

1010. HARP GUITAR. Wooden body, composed of 7 broad pieces of dark red wood, the sound-board triangular in shape, with rounded base and decorated with foliated gilt scrolls and ornamental borders in gold and green. Behind, one sound-hole similar to that in the harp. A single hole ornamented with a gilt rose and surrounded by a broad band in green and gold. The neck with 13 frets of metal and mother-of-pearl. A flat head, fitted with patent tuning mechanism, consisting of six small brass screws tipped with ivory, each turning a small brass wheel. England. c. 1800. Maker, Light, London.

Length, 3 feet. Width, 1 foot.

1074. GUITAR. Quadrangular body with flat back, the outline resembling that of a lyre without horns, and resting on a small square base. The sound-board, decorated with a painted garland of foliage, has 2 open holes on either side of the strings, decorated with a broad band of black, inlaid with white lines. The edges of the sound-board similarly decorated. Ebony finger-board, with 16 wooden frets and 4 additional frets on the sound-board. A small, flat, crescent-shaped head carries 6 pegs inserted from behind, and decorated with mother-of-pearl. The strings, similar to those of the ordinary guitar, are fastened by ornamental pins to a crescent-shaped bridge attached to the sound-board. France. 19th Century. Maker, Germain, Mirecourt.

Length, 3 feet.

1072. GUITAR. Quadrangular body with fantastic outline, resting on a small square base. A single oval sound-hole, surrounded with inlay of brown and white wood. Finger-board with 17 ivory frets. Flat head with reversed scroll, having 6 pegs inserted from behind. Six strings, gut and silk over-spun. Europe. 19th Century.

Length, 3 feet 10¼ inches. Width, 9½ inches.

This instrument is of inferior workmanship and is probably only a *jeu d'esprit*.

1071. HARP LYRE. A flat guitar-shaped body, edged with ebony and ivory lines. The sound-board pierced with 3 open holes. From the body rise 3 necks, joined together at the top by a cross-piece of ornamental outline, inlaid with pearl circles. The

left-hand neck (bass), with 15 metal frets, has 7 over-spun silk strings; the middle neck (accompaniment), with 21 metal frets and 6 strings, similar to those of the ordinary guitar; on the right-hand neck, 15 metal frets and 7 diatonic melody strings of gut. The pegs are inserted in the head-piece from behind, and the strings are all fastened to a long bridge attached to the sound-board of the instrument. France. Early 19th Century. Maker, Salomon, Paris.

Length, 3 feet 4 inches. Width of sound-board, 1 foot $4\frac{1}{2}$ inches.

1073. LYRE GUITAR. Quadrangular body of crescent-shaped outline, bearing an upper frame-work of modified lyre form, the sound-box having 2 open holes on either side of the strings. To the upper framework, which is ornamented with gilt scroll-work and beading, is attached an ebony finger-board with 15 ivory frets, the end of the board coming within two inches of the sound-box. Eight pegs inserted from behind, having originally 4 pairs of strings of wire passing over a movable bridge and attached to ivory buttons at the bottom of the instrument. Italy. Early 19th Century.

Length, 2 feet $6\frac{1}{2}$ inches.

Toward the end of the 18th Century and in the early years of the 19th the Lyre Guitar was in great favor.

CASE 71 a.

1346. LYRE GUITAR. Quadrangular case with the two sides prolonged and united at the top by a bar, the sound-board with one large hole decorated with pearl studs, and a fantastically-shaped sound-hole beneath the strings. Finger-board of light wood, with 19 frets of flat brass. The short head carries 6 metal pins inserted in front, from which strings, tuned like those of the guitar, are fastened to a wooden bridge fixed to the sound-board. On the left-hand side 6 pins inserted into the cross-bar carry 6 over-spun open strings, which pass over a small bridge at the lower end of the instrument and are fastened to the bottom by wooden pegs. Contrary to the usual practice in guitars, lutes and similar instruments, the sound-board is supported by a central sound-post. France. 18th Century.

Length, 1 foot 11 inches. Width, $10\frac{1}{4}$ inches.

2127. ROTE. Very shallow box of oak, in shape similar to that of a narrow Lyre, and made from one solid piece of wood,

the sound-board being added. Six gut strings attached to the bottom of the instrument and passing over a small bridge are attached to 6 pegs fixed to a cross-bar between the two horns. Two narrow slits across the lower part of the horns were used for inserting the cord which supported the instrument on the arm of the player. Germany. 7th Century. Reproduction. Original in the Berlin Museum.

Length, 2 feet 7 inches. Depth, 1 3-16 inches. Width of sound-board, 6½ inches.

The original of this instrument was found upon the bones of a knight in an old tomb in Southern Germany. The shape is derived from the old *Kithara*, a form of Lyre, and was probably the origin of the Welsh *Crwth*. (See No. 1086, Case 76 a, page 64)

CASE 72.

2033. LYRE. Quadrangular body of wood, shaped after the model of the ancient Greek Kithara. On the sound-board 2 open holes, the horns united by a broad strip of wood (Zugon) to which are attached 9 iron pins with 9 gut strings passing over a long bridge and affixed to small iron pins. England. 19th Century.

Length, 2 feet 7½ inches. Width, 1 foot 1½ inches.

This Lyre was remodeled from an old instrument by Hill & Co., of London, after a model designed by Mr. Abdy Williams, and used in the performance of the "Antigone," of Sophocles, at Bradfield College, England.

1077. LYRE GUITAR. Quadrangular body with flat back, in the form of a tall lyre, without cross-bar. One circular sound-hole. Finger-board ebony, with 17 metal frets; the head flat, with 6 pegs inserted from behind. Six strings, as in the ordinary guitar. Italy. c. 1800.

Length, 2 feet 8 inches.

1056. LYRE GUITAR. Quadrangular body in the shape of an elongated lyre, the cross-bar being replaced by a band of brass, which supports a central finger-board. The sound-board, decorated with fretted scroll-work, has 3 sound-holes, one a large crescent-shaped hole beneath the strings, the other two rose-shaped, in the horns of the instrument. Walnut finger-board, with 24 metal frets. Flat T-shaped head, with 6 pegs inserted from behind. Six strings, as in the guitar, attached to a small bridge affixed to the sound-board. Italy. Early 19th Century. Inscribed "Gennaro Fabricatore, Naples, 1807."

Length, 2 feet 8 inches.

2590. LYRE GUITAR. A short, shallow body of light wood, similar to that of the ancient lyre, the sound-board decorated with brass ornaments and having an open hole, surrounded with a black band inlaid with ivory; the edge of the sound-board and the finger-board similarly inlaid. The back of the neck inlaid in black and white stripes. In the horns 2 small sound-holes. Thirteen ivory frets, with 3 additional frets of wood on the sound-board. The cross-bar of wood, ornamentally turned; the head fitted with 6 pegs inserted from behind, carrying 6 strings similar to that of the guitar, attached to a bridge fixed to the sound-board. France. 18th Century. Inscribed "Lupot, Orleans, 1778."

Length, 2 feet $8\frac{1}{2}$ inches. Width, 12 inches.

1737. LYRE. Quadrangular body of light wood. Seven strings, four of wire and three gut, attached to a cross-bar between the horns and tuned by iron pins inserted from behind. The cross-bar is ornamented with a decorative representation of a miniature lyre in gilt with 5 strings. The sound-board has one open hole with geometrical rose. Italy. Early 19th Century.

Length, 2 feet $4\frac{1}{2}$ inches. Width, 1 foot 5 inches.

2712. LYRE. Reproduction in bronze from the small statue of Apollo Citaredo found in the House of Apollo, Pompeii. Original in the National Museum. Naples, Italy.

Height, $8\frac{1}{2}$ inches. Width, $5\frac{1}{2}$ inches.

CENTRAL CASE.

2711. LYRE. Reproduction in marble from the statue of Apollo Musaceto in the National Museum, Naples, Italy.

Height, 2 feet 9 inches. Width, 1 foot $6\frac{1}{2}$ inches.

CASE 72 a.

2431. LYRE GUITAR. Quadrangular body with flat back, painted green, the edges decorated with a gilt border of key pattern, the outline resembling that of a lyre without the cross-bar; the horns of solid wood attached on either side to the upper part of the sound-box. One open hole, decorated with gilt border of cable pattern. Finger-board ebony, with 20 ivory frets. A short, flat head, having 6 iron pegs turned by a cross-pin. Six strings, as in the guitar, attached to a bridge fixed to the body of the instrument. Europe. c. 1800.

Length, 2 feet 6 inches.

1054. GUITAR. Quadrangular body with flat back, the outline crescent form. The sound-board edged with red wax, inlaid with mother-of-pearl and ivory, and having 3 sound-holes, one open, surrounded by a pearl and wax band, the other 2 on the horns of the crescent, decorated with similar roses of interlaced circles. The back of the neck inlaid with ebony and ivory lines. Ebony finger-board with 19 ivory frets, the lower part attached to the sound-board. Flat head, decorated with mother-of-pearl inlay, having 6 pegs inserted from behind; 6 strings, as in the ordinary guitar, attached to a straight bridge with ivory nuts, affixed to the sound-board. Italy. 19th Century. Maker, Genaro, Naples, 1808.

Length, 1 foot 10½ inches. Width, 1 foot 4 inches.

1519. GUITAR. Elongated quadrangular case, inverted pear-shaped outline. Sound-board edged with a broad band of walnut veneer and having 2 sound-holes, one open, the other in the lower and narrower part of the sound-box, covered with a raised metal rose inscribed, "Jos. Beckhaus, Philadelphia." To the opposite end is attached a neck which resembles that of the ordinary guitar and has 19 metal frets. Flat head, with patent tuning mechanism, consisting of 6 revolving metal screws with ivory heads, each turning a small brass wheel. Six strings formerly attached by ivory pins to a bridge fixed to the sound-board. U. S. A. Within the instrument a paper label bearing the name "Emelius N. Scherr, 84 Harbor street."

Length, 4 feet 9½ inches.

This instrument could be rested upon the ground, the long, narrow end of the sound-box forming a supporting leg.

CASE 73.

1016. CITTERN. A narrow sound-box of beech-wood, with flat back. One ornamental rose, inlaid with ivory and ebony. Ebony finger-board, with 12 brass frets. Flat head, having a small scroll, terminating in an inlaid plaque. In place of the usual pegs, a patent tuning mechanism, consisting of long screws turned by a metal watch-key, raises brass hooks to which the strings are attached. Two pairs of steel strings, one of brass, one of over-spun, and 2 single strings over-spun, pass over a movable bridge and are attached to brass pins at the bottom of the instrument. England. c. 1800. Maker, Preston, London.

Length, 2 feet 3 inches. Width, 11½ inches.

The Cittern, also known as the *English Guitar*, and in France as the *Cistre*, is strung with wire, and was used both for accompaniment and solo playing, the string being plucked, as in the Mandoline, with a small plectrum.

The spelling of the name here adopted was that in common use in England in the 17th and 18th Centuries. In Germany the instrument was called *Cither*, but must not be confounded in any way with the horizontal German *Zither*, a form of Psaltery.

983. CITTERN. *Terzina*. A shallow sound-box of beech-wood, the sound-board edged with inlaid ivory lines, decorated with gilded scroll-work and having one open hole. Ebony finger-board with 15 brass frets. Flat head, with patent tuning mechanism similar to that used on the Guitar. Six strings fastened to a bridge attached to the sound-board by wooden pegs. Italy. 19th Century. Inscribed, "Gennaro Fabricatore, 1802." Naples.

Length, 1 foot 9½ inches. Width, 10 inches.

This instrument seems to have been played as a Guitar and tuned a third higher than the ordinary Guitar, hence its name—*Terzina*.

1011. CITTERN. Very shallow body of wood with flat back, the sound-board without decoration and pierced with one open hole. Fourteen metal frets; flat head, with 6 pegs inserted in front. Two pairs of steel strings and 2 single strings over-spun, pass over a movable bridge and are attached to some pins at the bottom of the instrument. Spain. 19th Century.

Length, 1 foot 8½ inches. Width, 8 inches.

This instrument was probably tuned in a way similar to the Mandoline, or, as it is called in Spain, the *Bandoline*.

1036. CITTERN. A shallow sound-box of light wood, with flat back and curved outline, the edge inlaid with ebony and ivory band. Ornamental rose in the sound-board, surrounded with ebony and ivory inlay. Ebony finger-board, with 15 brass frets. A long peg-box, the scroll terminating in a block of ebony and ivory inlay. Eleven tuning pegs, with 3 pairs of steel strings, 1 of brass, and 3 single over-spun strings, passing over a movable bridge attached to small ivory pins at the bottom of the instrument. France. 18th Century.

Length, 2 feet 3½ inches. Width, 1 foot 1 inch.

1297. CITTERN. A shallow body of beech-wood, the sound-board pierced with a single hole, having a gilt paper rose, and decorated with appliqué wood carving representing flowers and Cupids. Ten brass frets. A long peg-box terminating in a flat scroll with 12 pegs, carrying 6 pairs of metal strings, passing over an ebony bridge and attached to brass pins at the bottom of the instrument. Germany. 18th Century. Maker, Geo. Philip Alphenn, Frankfurt-on-Main, 1749.

Length, 2 feet 7½ inches. Width, 11¼ inches.

This instrument was well known in Germany as the *Sechs Chörichte Zither*.

1030. CITTERN. Shallow sound-box of wood, with sound-board more elongated than usual, with one open hole. Long neck, with 21 brass frets. Head placed at an angle and decorated with figures of musicians in brass. Ten metal pegs turned by a key, with 4 pairs of steel strings and 2 single over-spun strings, passing over a bridge and attached to iron pins at the bottom of the instrument. Germany. Early 19th Century (1824). Maker unknown. Restored in 1891 by H. Grossman, Dresden.

Length, 2 feet 4 inches. Width, 11 inches.

1017. CITTERN. Narrow sound-box, the back inlaid with colored bands, the sound-board purfled and edged with black and white wood inlay, with an open sound-hole, decorated with a circle similarly inlaid. Thirteen brass frets. Flat head, with 12 pegs inserted from behind. Six pairs of metal strings pass over a bridge and are attached to ivory buttons at the bottom of the instrument. Spain. c. 1800.

Length, 2 feet 5 inches. Width, 11 inches.

1015. CITTERN. A shallow sound-box of beech-wood, with curved outline. A single sound-hole, ornamented with stamped brass rose bearing representations of musical instruments. Tortoise-shell finger-board with 12 brass frets. Flat head, originally with 10 pegs inserted from behind. The scroll missing. Three pairs of metal strings, one pair of over-spun strings, and 2 single over-spun, pass over a movable bridge and are attached to the bottom of the instrument. England. c. 1800. Maker, Simpson, London.

Length, 2 feet 5 inches. Width, 11½ inches.

The English Citterns were often ornamented with ink lines instead of purfling.

1019. CITTERN. A shallow sound-box of walnut, with flat back. The sound-board with one open hole and decorated with inlaid bands in floral design. Walnut finger-board, with 14 brass frets. A flat head, terminating in a scroll. In place of the usual pegs a patent tuning mechanism, consisting of small screws with brass heads which, when turned, draw up small hooks to which the strings are attached. Twelve strings arranged in 6 pairs. Madeira. 19th Century. Inscribed with the initials "J. E. R."

Length, 2 feet 2 inches. Width, 11½ inches.

The Cittern is known in Madeira under the name *Guitarra de Flandres*.

2345. BASS CITTERN. Deep sound-box of beech-wood, with flat back, slightly rounded toward the finger-board. Sound-board of pear-shaped outline, edged with inlay of black and light

wood; one open sound-hole similarly inlaid. Seventeen brass frets. Long peg-box, with 11 pegs inserted at the side. Above this a second peg-box (restored) similar to the Archlute, with 5 pegs. From the first peg-box 3 pairs of steel strings and 3 single over-spun, pass over the finger-board. From the open peg-box 5 open single strings pass over a narrow bridge and are attached by small ivory pins at the bottom of the instrument. Germany. 18th Century.

Length, 3 feet 10 inches. Width, 13 inches.

The Bass Cittern was also called *Bijuga Cither*, and in France, *Archcistre*. The upper peg-box is intended to give greater length to the brass strings.

CASE 73 a.

848. CITHER BANJO. A circular brass shell, with parchment head, tightened by screws. Short neck, with 10 metal frets. Flat head, with patent tuning mechanism similar to that used in the Guitar. Six strings of wire passing over a movable bridge and attached to brass buttons at the bottom of the instrument. Prague, Austria. 19th Century. Maker, K. Schamal.

Length, 1 foot 11½ inches. Diameter, 12¼ inches.

This instrument is played with a plectrum.

1021. PANDORE. A flat, shallow body of ebony, with ivory lines inserted, the sides festooned in outline, the back having a sound-hole with a geometrical rose. A broad ebony finger-board. A double peg-box containing 19 pegs; the scroll in the form of a man's head. Italy. 17th Century.

Length, 4 feet 3½ inches. Width, 1 foot 5 inches.

1032. PANDORE. A flat, shallow body of ebony with sides festooned in outline, similar to preceding. A double peg-box containing pegs, and finished in a carved head. Italy. 17th Century.

Length, 3 feet 3 inches. Width, 1 foot 3 inches.

1039. CITHERVIOL. Shallow box of light wood with incurved sides, shoulders similar in shape to that of the Viols. At the back, which is concave to admit the hand, an iron holding hook. On the sound-board a small paper rose. Four strings of wire, no frets. Attached to the head a long revolving plectrum of iron. The strings, attached to the head by brass hooks, after passing over a bridge similar to that of the Viol, are tuned by 4 wooden pegs inserted in the bottom of the instrument. Spain. Early 19th Century.

Length, 1 foot 4½ inches. Width, 8½ inches.

CASE 74.

995. SCHEITHOLT. Narrow, oblong case. Sound-board pierced with 2 heart-shaped holes, the head terminating in a scroll and having 5 iron pins inserted in front, bearing one melody string, passing over 15 metal frets and 4 accompaniment strings. Germany. 18th Century.

Length, 2 feet 6 inches. Width, $2\frac{1}{2}$ inches.

990. SCHEITHOLT. Épinette des Vosges. Narrow oblong box with two decorative sound-holes. At one end a quadrangular peg-box containing 5 pegs carrying one pair of steel melody strings, which pass over 14 wire frets on the sound-board, and 3 pairs of accompaniment strings, attached to small pins at the lower end of the instrument. France. 19th Century. Maker, Fleurot, Valdajol.

Length, 1 foot $9\frac{1}{4}$ inches. Width, $2\frac{1}{2}$ inches.

Val d'Ar

992. SCHEITHOLT. A narrow sound-box, pierced with 2 ornamental sound-holes, the sides slightly curved and tapering. Peg-box with 5 pegs. Two melody strings passing over 17 wire frets. Three accompaniment strings. Sound-board ornamented with floral designs in color. France. Middle 19th Century. Maker, Lambert.

Length, 2 feet. Width, 3 inches.

991. SCHEITHOLT. A quadrangular box with two sound-holes, the sides slightly tapering. Peg-box terminating in a carved scroll, with 5 pegs. One pair of metal strings, passing over 17 wire frets attached to the finger-board. Three accompaniment strings. The sound-board decorated with ornamental lines of inlaid wood. France. 19th Century. Maker, Lambert, Valdajol.

Length, 1 foot 11 inches. Width, 3 inches.

988. ZITHER. Shallow body. Sound-board with long pointed ends and incurved sides, and having 4 heart-shaped sound-holes. The peg-box with 3 wooden pegs inserted at the side and terminating in a moulded scroll. Three metal strings, 2 in unison sounding D, passing over 17 brass frets, the other string sounding a fifth below, G. Germany. 18th Century.

Length, 2 feet 1 inch. Width, $7\frac{1}{2}$ inches.

2427. ZITHER. Shallow sound-box with one straight side, the other side describing a large curve in its lower part. The sound-box with a single open hole. Flat head, carved with the rep-

resentation of an animal. The head formerly carrying 10 metal pins inserted in front. Two pairs of strings, passing over the finger-board, furnished with 12 wire frets. Three pairs of accompaniment strings, all attached to small pins at the bottom of the instrument. Germany. c. 1700.

Length, 2 feet. Width, 9 inches.

2481. ZITHER. Shallow sound-box resting on four feet, with one straight side, the other describing a semi-circular curve in its lower part. The sound-board pierced with 2 geometrical sound-holes. A flat head, with turned scroll ornamented with carving, having 18 iron pins inserted in front. Two pairs of steel melody strings passing over a finger-board with 16 wire frets, the others of silk, forming the accompaniment. The strings, which pass over an iron bridge, are attached to small pins at the bottom of the instrument. Germany. 17th Century.

Length, 1 foot $7\frac{1}{2}$ inches. Width, $8\frac{1}{4}$ inches.

986. ZITHER. Shallow guitar-shaped body resting on 3 ball feet. The sound-board with one open hole; the head of triangular form, with 19 iron pins inserted in front. 19 strings, 3 of them wire, passing over an ebony finger-board with 22 brass frets, the rest accompaniment strings, of gut and over-spun silk. All the strings pass over an ebony bridge fixed to the sound-board, and are attached by small pegs to the bottom of the instrument. Nuremberg, Germany. 18th Century.

Length, 2 feet 6 inches. Width, $12\frac{1}{2}$ inches.

2480. ZITHER. Deep wooden sound-box resting on three feet, with sloping shoulders and broad neck. Sound-board with 3 F-shaped sound-holes. The flat, broad head fitted with 16 iron pins inserted in the front and having 4 single melody strings of wire, the first 2 passing over 16 frets, the other 2 passing over 11 frets. These, as well as the accompaniment strings of wire, are attached to the bottom of the instrument with iron pins. Germany. 17th Century.

Length, 1 foot $9\frac{1}{2}$ inches. Width, $12\frac{1}{2}$ inches.

997. DOUBLE ZITHER. An oblong, shallow box on four small feet. Arranged as two Zithers reversed and placed side by side. The two instruments are identical. In each 2 sound-holes, the smaller one ornamented with a paper rose. At either end 14 iron pins, inserted in a block, carry 3 melody strings of metal, passing over a finger-board containing 17 wire frets, and 11 accompaniment strings of gut and silk. The strings are attached by ivory

pins to a long ebony bridge fixed to the sound-board. Germany. 18th Century. Maker, Andreas Giller, Augsburg.

Length, 1 foot 10 inches. Width, 12 inches.

This instrument is evidently intended for the performance of duets.

2528. **DOUBLE ZITHER.** Flat, guitar-shaped body resting on 3 ball feet, the sound-board pierced with 2 holes, decorated with inlaid woods. A flat head, terminating in small scroll decorated with ivory. Two sets of melody and accompaniment strings, the left-hand side arranged as follows: one pair of steel strings and one pair of brass, passing over a finger-board provided with 13 frets. Eight accompaniment strings of gut arranged in 4 pairs. The right-hand side contains one pair of steel strings, one of brass, passing over a central finger-board containing 12 frets, and 8 accompaniment strings of gut, arranged in pairs. The strings are attached to small iron pins, placed in front of the instrument, and are fixed to a long bridge on the body. On an ivory plaque the initials "B. B." Europe. 18th Century.

Length, 2 feet 3 inches. Width, 12½ inches.

CENTRAL CASE.

2073. **DOUBLE ZITHER.** A flat, guitar-shaped body having a sound-board on either side, each of which is pierced with 2 geometrical roses, the head terminating in a double scroll. Originally mounted on one side with 2 melody strings of metal, which passed over a finger-board provided with 14 metal frets; also 8 accompaniment strings; on the opposite side were two melody strings, which passed over a finger-board provided with 16 metal frets; also 6 double accompaniment strings. The strings were fastened to iron pins placed in the head of the instrument, and fixed to a long bridge on either side of the body. Germany. 19th Century. Maker unknown.

Length, 1 foot 11 inches. Width, 1 foot. Depth, 3 inches.

CASE 74 a.

989. **ZITHER.** Langleik. Long, narrow sound-box of pine, resting on 4 small feet, the sides having a slight outward curve. Sound-board with 4 scroll-shaped curves. Peg-box with 8 pegs inserted at the side, terminating in a scroll, bearing one melody and 7 accompaniment strings, attached to small pins at the bottom of the instrument. Beneath the melody string 16 wooden frets. Norway. 18th Century.

Length, 3 feet 7½ inches. Width, 5¼ inches.

1852. ZITHER. Langleik. Similar to preceding, but with elaborate carved decoration on the sides of the body and peg-box. Two melody strings, the first passing over 17 frets, the second over 13 frets. Christiana, Norway. 18th Century.

Length, 3 feet. Width, $5\frac{1}{2}$ inches.

2475. ZITHER. Oblong sound-box, the sound-board pierced with 2 circular holes, one bearing a wooden rose; the head with a flat turned scroll, and having 7 brass pins, turned by a key inserted in front. One pair of melody strings and 5 accompaniment strings of brass wire. Europe. 18th Century.

Length, 3 feet 1 inch. Width, 2 feet $9\frac{3}{4}$ inches.

2393. ZITHER. Hommel. Oblong case of pine-wood without back. 5 metal strings attached to 4 pegs in the peg-box at the end of the instrument, and one additional peg placed on the side. An ornamental scroll of carved wood rises from the end of the box. One melody string passes over 11 wooden frets fixed to the sound-board. Norway. 1799. Inscribed "J. V. S."

Length, 3 feet. Width, 4 inches.

2200. ZITHER. Oblong sound-box, the sound-board pierced with a single sound-hole, having a pierced rose and two small F-shaped holes in the middle of the instrument. Head terminating in carved scroll with 7 metal pins inserted in front. 7 metal strings pass over an ivory bridge at the bottom of the instrument and are fastened to brass pins. No frets. Italy. Early 19th Century.

Length, 3 feet. Width, $3\frac{3}{4}$ inches.

987. ZITHER. Shallow sound-box of wood, with one straight side, the other curved similar to that of the violin. Sound-board with carved decoration and pierced with 2 sets of 8 small holes. Peg-box terminating in carved scroll and having 6 pegs inserted at the side. Six pairs of strings pass over 17 frets of brass placed on the sound-board and are attached to 3 wooden pins at the bottom of the instrument. Germany. c. 1800.

Length, 2 feet $9\frac{1}{2}$ inches. Width, 8 inches.

2740. ZITHER. An oblong case of stained wood without back. An ornamental scroll of carved wood at one end in which are inserted ten metal pins. On one side of the instrument, in groups of three, nine additional pegs are inserted. A finger-board provided with 18 metal frets, also a central finger-board with six frets. Two small metal roses. The strings pass over a bridge at the bottom of the instrument and are fastened to metal pins. Tyrol. 19th Century.

Length, 2 feet $11\frac{1}{2}$ inches. Width, $6\frac{1}{4}$ inches.

CASE 75 a.

- 1794.¹ BELL HARP. Triangular-shaped case, containing 16 sets of treble brass strings, pass over 2 oblique bridges, hidden beneath an outer covering of thin wood and are attached to 48 iron pins, tuned with a brass key, inserted in a block at the narrow end of the instrument. On each side are 2 short handles, by which the instrument is supported, the strings being plucked by the thumbs as the harp is waved to and fro. England. 18th Century. Reproduction. Original in the South Kensington Museum, London.

Length, 1 foot 8½ inches. Width, 13½ inches.

2715. FAIRY BELLS. Narrow rectangular box across which are stretched eight metal strings tuned by iron pins and plucked by the thumbs of both hands while the instrument is held by the fingers and swayed to and fro. The strings are tuned diatonically and protected in the lower part by a thin cover of wood decorated with gilt designs and grotesque figures. France. Late 19th Century.

Length, 2 feet 2 inches. Width, 6 inches. Depth, 2 inches.

1798. FAIRY BELLS. Similar to preceding. Narrow rectangular box mounted with twelve wire strings tuned by iron pins inserted in the top. Europe. 19th Century.

Length, 2 feet 1½ inches. Width, 6½ inches. Depth, 2 inches.

2477. ÆOLIAN HARP. Triangular body, with two oblong holes at the back. On either face 5 gut strings, attached to 5 metal pins, and tuned by iron hooks inserted in the end block. Strings passing over the usual bridges. Europe. 19th Century.

Length, 3 feet 11½ inches. Width, 4¾ inches. Cover missing.

This instrument is made to be placed in the open sash of the window. The wind, blowing upon the strings, causes them to sound harmonic notes according to its varying pressure.

In this specimen the sharp angle is turned toward the wind, and the current of air being divided, both sets of strings sound together.

1658. ÆOLIAN HARP. An oblong case without back. 12 gut strings, passing over 2 long bridges, regulated by iron pins inserted in the end block. Sound-board with one open hole. England. 19th Century.

Length, 2 feet 9 inches. Width, 5 inches.

¹ No. 1794. Reproduction procured through the courtesy of the Director of the South Kensington Museum, London.

1000. ÆOLIAN HARP. An oblong case without back. 8 gut strings, passing over 2 long bridges, fastened to small hooks and regulated by iron pins inserted into the end block. England. 19th Century.

Length, 3 feet $1\frac{1}{4}$ inches. Width, 7 inches.

1390. PSALTERY. Semi-circular case with two ornamental sound-holes and decorated with ivory studs. Small iron hooks, from which 15 thin wire strings pass over 2 bridges to 15 wooden pegs inserted in the other end. Italy. 19th Century.

Length, 1 foot $9\frac{1}{2}$ inches. Width of box (diameter of semi-circle), 13 inches.

This instrument is plucked with the fingers or with a plectrum.

2231. PSALTERY. Trapeze-shaped case with two round sound-holes. 15 steel strings, passing over 2 metal bridges and tuned by 15 iron pegs placed upon the side of the instrument. Italy. 19th Century.

Length, 1 foot $5\frac{1}{2}$ inches. Width, 9 inches.

1005. PSALTERY. Kantele. Trapeze-shaped, shallow sound-box of pine-wood, terminating in a flat scroll and resting on 3 short feet, pierced with 2 holes in front. At the lower end, 30 wire and brass strings, attached to iron pins, pass over a bridge of brass wire and are tuned by 30 iron pegs placed on the long side of the instrument. Finland. 19th Century.

Length, 2 feet $11\frac{1}{2}$ inches. Width of lower end, $12\frac{1}{2}$ inches.

The Kantele is the National instrument of Finland.

For another example of the Psaltery, see No. 1002, page 80.

CENTRAL CASE.

- 746.¹ SPITZHARFE. Double Psaltery. A shallow sound-box of wood, ornamented with paintings of David playing the harp, and of flowers and fruit; pierced on either side with a sunken rose. The sound-box is placed in a vertical position on 2 small feet, the point being decorated with a grotesque head. On the right-hand side are 2 bridges, over which are passed 68 strings, arranged in pairs; on the left-hand side, 2 bridges, one short, for bass octave strings, over which pass 37 metal strings. The tuning-pins on either side are arranged at the lower end of the instrument. Eng-

¹ No. 746. Reproduction procured through the courtesy of the Director of the South Kensington Museum, London.



No. 1757.

Spitzharfe.

Page 57.

land. Early 17th Century. Reproduction. Original in the South Kensington Museum, London.

Height, 3 feet 7 inches.

This instrument is known as the *Arpa Doppia*, *David's Harp*, or *Arpanetta*, but as the strings run over the sound-board instead of rising from the sound-board, it belongs rather to the psaltery and cittern class than to the harp.

2160. SPITZHARFE. A shallow sound-box placed vertically upon an ornamental base of wood, painted green, with gold-leaf mouldings, having on either side a cherub's head, and in the front a lyre. The sound-board, which lies beneath the strings, has a single hole on the right-hand side. The front pillar, a purely ornamental adjunct, moulded and painted, bears a large scroll, with festoon decoration. On the right-hand, or treble, side are 15 strings of wire, passing over a bridge on the lower part of the sound-board; on the left-hand side 15 wire strings pass over a similar bridge. France. 19th Century.

Height, 5 feet 4 inches.

1757. SPITZHARFE. A shallow sound-box of wood, with a sound-hole on either side, placed vertically. The bass, in front, decorated with a finely carved figure of a praying angel. The ends of the case adorned with panel work in oak. On the right-hand side 32 metal strings, passing over a bridge at the end of the instrument. On the left-hand side 31 strings, passing over a similar bridge, the tuning-pegs placed at the base of the instrument. Germany. 17th Century.

Height, 2 feet 8 inches.

CLASS I. STRINGED INSTRUMENTS.

DIVISION I. WITHOUT A KEYBOARD.

SECTION B. STRUCK STRINGS.¹

GALLERY 26. CASE 75.

1004. DULCIMER. Trapeze-shaped case resting on four feet, the sides painted with gilt scroll-work. The sound-board, edged with gilt moulding and having 2 ornamental roses, is furnished with 26 sets of triple strings, attached to small brass pins on one side. Seven movable bridges, placed upon the sound-board, regulate the pitch of the strings, the bass strings passing through the circular openings. France. 18th Century.

Length, 2 feet 6 inches. Width, 13½ inches.

The Dulcimer differs from the Psaltery principally in being struck by hammers instead of being plucked by the fingers. Thus it becomes the parent of the Clavichord and Piano, as the Psaltery is the predecessor of the Spinnet, Virginal and Harpsichord.

In Germany the Dulcimer is called the *Hackbret*; in Italy it is known as *Salterio Tedesco*; in France as the *Tympanum*.

1003. DULCIMER. Trapeze-shaped sound-box, the sides decorated with gilt gesso work, the sound-board ornamented with paper decoration and 2 gilt roses, and furnished with 11 sets of quadruple strings and 3 sets of triple strings, attached to pins on one side. The strings originally passed over movable bridges (now lost). Italy. 18th Century.

Length of longest side, 2 feet 10 inches. Width, 12 inches.

1001. DULCIMER. Trapeze-shaped case, painted blue; sound-board edged with gilt, decorated with floral designs and having 2 ornamental sound-holes. The 28 sets of strings, arranged in alternate groups of 6 and 5, are fastened to small pins on one side, and are tuned by iron pegs inserted in the front of the other side. Seven bridges, pierced with circular openings placed on the sound-board, regulate the pitch of the strings, the bass wires, as in the previous specimen (No. 1004), passing through the openings. Spain. 18th Century.

Length of longest side, 3 feet 2 inches. Width, 1 foot 2½ inches.

1533. DULCIMER. Trapeze-shaped case, the sound-board pierced with 2 small holes and edged with ornamental beading of

¹ See Preface to Stringed Instruments, page 13.

wood, is furnished with 21 sets of triple and double strings, arranged alternately, affixed to small pins on one side and tuned by metal pegs inserted in the front of the other side. A bridge, pierced with 10 circular openings, is placed across the centre of the sound-board. The triple strings pass over the bridge; the double strings (bass) of thicker wire pass through the openings, by which means the necessary extra length is obtained. Germany. 19th Century.

Length of longest side, 2 feet 11½ inches. Width, 10 inches.

2121. **DULCIMER.** Miniature Model. Trapeze-shaped case, decorated with tortoise-shell and mother-of-pearl, the sound-board, edged with ivory and decorated in a similar way, with 2 open holes. Metal strings, passing over 4 small bridges (now missing), attached to ivory buttons on one side and possibly tuned by square-headed ivory pegs at the opposite side. France. 19th Century.

Length of longest side, 6¾ inches. Width, 3¼ inches.

For another example of the Dulcimer, see No. 1440, page 83.

1013. **KEYED CITHER.** Narrow sound-box of light wood, the sound-board oval in shape, with ink line decoration. Ebony finger-board, with 12 brass frets. Flat head, with scroll, terminating in an inlaid plaque. Patent tuning mechanism, consisting of revolving screws, turned by a small watch-key, and drawing up brass hooks to which the strings are attached. Metal strings, arranged in the following order: The first 2 sets (treble) of steel, the second 2 of brass, followed by 2 single bass strings, passing over an ivory bridge and attached to brass pins at the bottom of the instrument. Attached to the right-hand side of the instrument are 6 wooden keys in a brass frame; on pressing the keys, small hammers are raised by patent mechanism concealed within the instrument, acting through 6 holes placed diagonally under the strings and occupying the position of the usual sound-hole. England. c. 1800. Maker, Claus.

Length, 2 feet 4½ inches. Width, 12 inches.

The patent mechanism in this form of Cittern cannot be regarded as a key-board; it is merely a mechanical contrivance for sounding the strings, which are stopped, as usual, by the fingers. The bridge contains a curious contrivance for muting the strings, by bringing a piece of red cloth in contact with them. Claus' invention was patented in 1783.

1014. **KEYED CITHER.** Shallow body of light wood, sound-board decorated with ink lines and edged with inlaid woods. One sound-hole, with pierced brass rose. Tortoise-shell finger-board, with 12 brass frets. Flat head, with small scroll, terminating in an inlaid plaque. Patent tuning mechanism, consisting

of revolving screws turned by a watch-key, and raising small brass hooks to which the strings are attached. Four pairs of metal strings and 2 single over-spun pass over a bridge and are attached to ebony pins at the bottom of the instrument. Above the strings, attached by two screws to the bottom of the instrument, is a small oval box containing 6 ivory keys, which, when touched, move small hammers and strike the strings by an action similar to that of the Piano. England. c. 1800. Box engraved "Smith, London."

Length, 2 feet 2 inches. Width, 11 inches.

999. **TAMBOURIN À CORDES.** Oblong case of plain wood, the sound-board decorated with a small ornamental rose; 6 gut strings fastened through holes at the small end pass over 2 bridges and are put around staples and attached to 5 turned pegs inserted in the end of the case. The block decorated with 2 small scrolls of wood. France. Early 19th Century.

Length, 3 feet $1\frac{1}{2}$ inches. Width, 7 inches.

This instrument, which is still used in Provence, is held across the left arm and struck with a small stick held in the right hand, while the left hand of the performer holds a small 3-holed pipe, the *Galoubet* or *Chirula*. This instrument is also called *Tambourin du Bearn*.

934. **PIPE.** *Treble in C.* Galoubet. A narrow, cylindrical tube of boxwood, with horn mounts, having two holes in front and one at the back. Provence, France. 19th Century.

Length, 12 inches.

This pipe is used with the preceding instrument, the *Tambourin à Cordes*, and is also called *Chirula*. For other examples see page 118.

1307. **TONOMETER.** A long, oblong case with five strings attached to iron pins turned by a key, passing over 2 ebony bridges and fastened at the opposite end. On the left-hand side 5 ivory knobs act on small hammers by a mechanism, similar to that of the piano, concealed within the case. At the side of the strings a graduated brass scale. By 5 ivory screw pins, placed over the strings, any desired length may be obtained. Italy. 19th Century.

Length, 3 feet 11 inches. Width, 5 inches.

CLASS I. STRINGED INSTRUMENTS.**DIVISION I. WITHOUT A KEYBOARD.****SECTION C. BOWED STRINGS.¹****GALLERY 26. CASE 76.**

958. **MONOCHORD.** Trompette Marine. A long tapering body, formed of 7 strips of wood; the end closed, and the sound-board without any hole. A single string passes over a movable bridge and long neck to a peg-box, finished with a flat piece of wood, and fitted with a peg, turned by a screw mechanism. On the finger-board the following notes are marked on pieces of paper in ink: "C, D, E, F, G, A, H, C." Germany. c. 1700.

Length, 5 feet 11 inches. Width, 13½ inches.

The Trompette Marine, also called *Nonengeige* or *Trumscheit*, was used in place of the Trumpet where players of that instrument could not be had. The string, which passes over the finger-board in the usual way, is touched by the thumb only at certain points marked on the finger-board, thereby giving the harmonic notes of the string, whose sound is reinforced by the vibration of the moving bridge upon the sound-board. It is generally supposed that the name Trompette Marine was taken from its use by sailors for signaling at sea; it may, however, have been derived from the name of the celebrated Trumpeter, Marin, c. 1500.

The Trompette Marine is mentioned by Jourdain, one of the characters in Molière's "Bourgeois Gentilhomme" (1670).

1600. **MONOCHORD.** Trompette Marine. A long, narrow sound-box of thin wood, the back composed of 5 strips, the end closed. On the sound-board 3 open holes. A single string, fastened at the bottom, passes over a moving bridge and is tuned by a peg inserted in a peg-box placed at the end of the long neck, terminating in a carved scroll. Germany. 16th Century.

Length, 7 feet. Width at base, 8 inches.

2476. **MONOCHORD.** Trompette Marine. Tapering sound-box of wood, composed of 7 strips of wood, the end open. Sound-board decorated with an ornamental rose. A single string, passing over a bridge and long neck to peg-box, which terminates in a carved scroll. On the neck the following notes in ink: "C, E, G, C, D, E, F, G, A." On the right-hand side of the bridge is a small boss, in which a peg is inserted, which is attached by a string to the bridge, and serves to regulate the pressure of the vibrating foot upon the sound-board. Germany. c. 1800.

Length, 6 feet. Width, 1 foot 6 inches.

¹ See Preface to Stringed Instruments, page 13.

- 1328.¹ MONOCHORD. Trompette Marine. A narrow sound-box of wood, spreading at the base, the back formed of 5 strips of wood. One long string, passing over a movable bridge and attached to a sliding eyelet, which is raised by a long screw turned by means of a key. The upper part of the instrument terminates in a moulded knob. Switzerland. 17th Century. Reproduction. Original in the Historisches Museum, Basle.

Length, 5 feet 5½ inches. Width of base, 2 feet.

1386. MONOCHORD. Body a rectangular box, the sound-board having an ornamental rose. One metal string, attached to the bottom, passes over 2 brass bridges, and is tuned by an iron pin placed in the farther end. Beneath the strings a narrow finger-board, containing 16 wire frets. Italy. 19th Century.

Length, 1 foot 4 inches. Width, 2¾ inches.

2571. MONOCHORD. Similar to 1386, with open, oval sound-hole. Six frets, giving a diatonic scale of 2 octaves and 2 notes, from A to C. Germany. 19th Century.

Length, 1 foot 4½ inches. Width, 2½ inches.

These small instruments were originally used for experimental purposes.

1060. TRICORD. A shallow case of wood, with a rose-shaped sound-hole, and carvings on the side representing musical subjects. Three metal strings and 14 wire frets, arranged diatonically. Europe. 19th Century.

Length, 1 foot 5 inches. Width, 2½ inches.

2168. TETRACORD. Zuber. A shallow case of polished rosewood, standing on 4 sloping legs, furnished with 26 brass frets and a sound-hole at the side. Four strings of metal, 2 over-spun, attached to small brass pins at one end, pass over 2 brass bridges and are tuned by iron pegs placed in a short, flat head. Germany. 19th Century.

Length, 1 foot 4¾ inches. Width, 2¼ inches.

CASE 76 a.

980. MONOCHORD. Body consisting of a long pole with a cross-piece fastened to the lower part and carrying a large bladder, over which a single gut string is stretched. The head terminating in a grotesque figure, beneath which is a single tuning

¹ The reproduction of this instrument (No. 1328) was procured through the courtesy of the Director of the Historisches Museum at Basle.

peg, operated by a screw mechanism. Attached to the upper part of the pole is a metal frame, containing 5 small bells. Germany. 18th Century.

Length, 6 feet.

This instrument is played with a roughly notched stick, and is used by the wandering musicians at fairs, by whom it is known as the *Bumbass*, or *Basse de Flandres*.

2478. MONOCHORD. Salmodikon. A shallow, oblong case, slightly tapering, the sound-board having one open hole and furnished beneath with 4 sympathetic strings. A single string, passing over a fixed bridge, is attached to a screw at the end of the instrument. On the finger-board are 31 frets, giving a chromatic scale of 2 octaves and 7 notes, from C to G. Norway. 19th Century.

Length, 3 feet 5 inches. Width, 7 inches.

981. MONOCHORD. Salmodikon. Shallow, rectangular body, with one open hole. A string, passing over a fixed bridge, is attached to a peg on the end block. On the finger-board, 26 wire frets, giving, when the string is pressed, a chromatic scale of 2 octaves and one note, from G to A. Norway. 19th Century. Maker, W. Harloff, Bergen.

Length, 2 feet 11½ inches. Width, 3½ inches.

This instrument is used in Norway and Sweden to accompany the voice.

340. MONOCHORD. Gusla. Bowl-shaped body, formed of a solid piece of wood, hollowed out from within, the exterior decorated with coats of arms and floral designs in red and green. One small rose at the back. Oval sound-board of brass, attached to the instrument by colored porcelain-headed pins. In the centre an ornamental sound-hole. A single string of black horse-hair, passing over a bridge, is attached to a large peg inserted through the neck from behind. The head recurved and carved with representation of an animal. Arched bow of wood, with black horse-hair, provided with a short handle. Bulgaria. 18th Century.

Length, 2 feet 1 inch. Width, 7 inches.

490. MONOCHORD. Gusla. Similar in shape to the preceding. Sides carved with foliage, the sound-hole in the small oval back taking the form of a cross. Parchment front, pierced with several small holes and fastened to the body with porcelain-headed pins. One gut string, tuned by a large peg at the top of the neck, which is waved and carved with leaf-pattern, the upper part terminating in the carved head of a bird. Bow attached. Bulgaria. 19th Century.

Length, 1 foot 11½ inches. Width, 7 inches.

1086. CRWTH. A shallow body, lyre-shaped, with flat back, the sound-board pierced with 2 small holes, through one of which is placed the left leg of the long bridge, which in this way acts as a sound-post. In the cross-bar, 6 T-shaped pegs, inserted from the front, carry 4 gut strings, which pass over the central finger-board, and 2 gut open strings, placed at its side. The 4 strings are stopped with the fingers and sounded by a bow, the 2 open strings are plucked with the thumb from behind. Wales. 18th Century. Reproduction.

Length, 1 foot 10 inches. Width, 10 inches.

The *Crwth* is probably derived from the *Lyre* or *Kithara*, through the mediæval *Rote* (see Case 71 a, No. 2127, page 44).

CASES 77, 77 a.

FAMILY OF VIOLS.

These seven instruments, Nos. 1528, 1343, 2227, 947, 946, 949, and 948, form a complete set or family of viols, including examples of the "deep" and "shallow" models in the treble; a smaller set, or chest, generally consisted of two trebles, two tenors and two small basses.

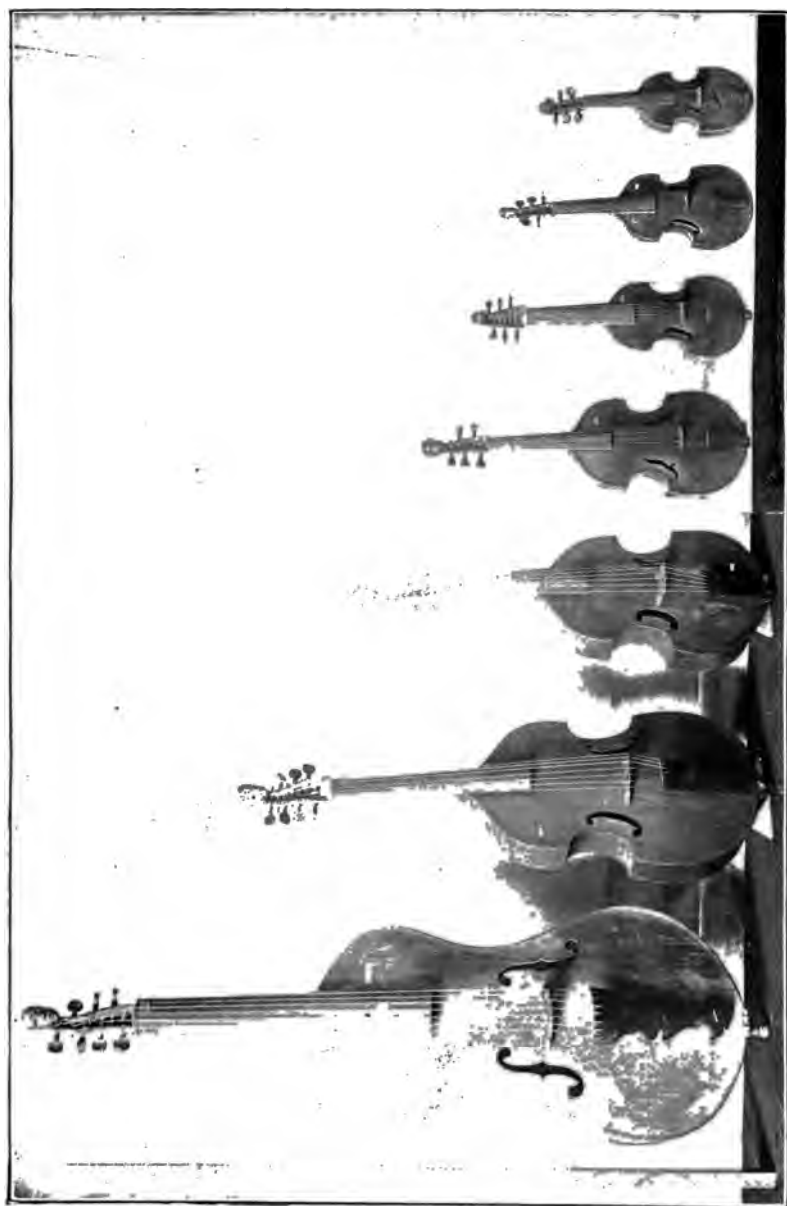
1528. CONTRA BASS VIOL. Violone. Deep model with flat back, the upper part sloping. Yellowish varnish. Sides without corner blocks. Ornamental tail-piece. Two F holes. The peg-box terminating in a carved human head. Seven strings and pegs. At the bottom of the instrument a large wooden peg, used as a support. Italy. 17th Century.

Length, 5 feet 8 inches. Width, 7¾ inches. Width, 1 foot 10½ inches. Depth, 1 foot 3 inches.

Instruments of the Viol Family are constructed with flat backs; the finger-board is bound with gut frets, as in the Lute; in old instruments these frets are usually missing, as they were attached by the performers when the instruments were in use. The strings, numbering from 5 to 7, are tuned in fourths with a major third between the third and fourth strings, instead of in fifths, as in the violin.

- 1343.¹ BASS VIOL. Basse de Viole or Viola da Gamba. Deep model, the back sloping in the upper part. Reddish-brown varnish. Flat back. Two C-shaped sound-holes. Peg-box terminating in a carved representation of a human head. Seven strings,

¹ This instrument, together with Nos. 1344, 1345, was imported from France by the Sisterhood of the Hospital Generale in Montreal, prior to the conquest of Canada; and these instruments were used in the convent choir many years before the appearance of organs and pianos in the New World.



FAMILY OF VIOLS.			
<i>a.</i>	No. 1528. Contra Bass Viol, page 64	<i>b.</i>	No. 947. Alto Viol,..... page 65
<i>b.</i>	No. 1343. Bass Viol,..... " 64	<i>c.</i>	No. 946. Treble Viol, deep " 65
<i>c.</i>	No. 945. Bass Viol,..... " 64	<i>d.</i>	No. 948. High Treble Viol,..... page 65
<i>d.</i>	No. 949. Treble Viol, shal- low model,..... page 65	<i>e.</i>	No. 950. High Treble Viol,..... " 65
<i>e.</i>	No. 951. Treble Viol,..... " 65	<i>f.</i>	No. 952. Treble Viol,..... " 65
<i>f.</i>	No. 953. Treble Viol,..... " 65	<i>g.</i>	No. 954. Treble Viol,..... " 65

passing over an ornamental bridge; 7 pegs. France. 18th Century. Maker, Nicholas Bertrand. Paris, 1720.

Length, 4 feet 1 inch. Width, 1 foot 4 inches. Depth, $5\frac{3}{4}$ inches.

2227. LARGE TENOR VIOL. *Taille*. Deep model with flat back, sloping in the upper part. Yellowish-brown varnish. Two C-shaped sound-holes. Tail-piece and finger-board ornamented with black lines. The peg-box terminating in a female head. Six strings, passing over an ornamental bridge; 6 pegs. Italy. 17th Century.

Length, 3 feet $2\frac{1}{2}$ inches. Width, $2\frac{1}{2}$ inches. Depth, $4\frac{1}{2}$ inches.

This instrument was played on the knee, the head being placed over the left shoulder; hence the name *Viola da Spalla*. The large-sized Tenor Viol, strung in England with sympathetic strings similar to those of the *Viola d'Amour*, was called *Lyra Viol* or *Viola bastarda*, as it had no regular place in the "chest" of viols. The use of sympathetic strings seems to have originated in England.¹

947. ALTO OR SMALL TENOR VIOL. *Haute Contre*. Deep model, flat back, sloping in the upper part. Reddish-brown varnish. Two flaming sound-holes. Peg-box terminating in a blind-folded head. Five strings and 5 pegs. Germany. 17th Century. Maker, Rudolph Churst, Munich.

Length, 2 feet $6\frac{1}{2}$ inches. Width, $9\frac{1}{2}$ inches. Depth, $2\frac{7}{8}$ inches.

From the collection of the Count de Bricqueville.

The alto viol was known in Italy as the *Viola da Braccio*, or *Arm Viol*.

946. TREBLE VIOL. *Dessus*. Deep model, the upper part of the back sloping. Dark reddish-brown varnish. Two C-shaped sound-holes. Broad ebony finger-board. Peg-box terminating in an incurved scroll. Six strings and pegs. France. 18th Century. Maker, Jean Ouvrard, Paris, 1726.

Length, 2 feet $1\frac{1}{2}$ inches. Width, $7\frac{5}{8}$ inches. Depth, 3 inches.

From the collection of the Count de Bricqueville.

949. TREBLE VIOL. *Dessus*. Shallow model with moulded back. Dark brown varnish. C-shaped sound-holes. Peg-box terminating in a carving representing a human head. Five strings and 5 pegs. France. 18th Century. Maker, Fleury, Paris, 1781.

Length, 1 foot $11\frac{1}{4}$ inches. Width, $7\frac{3}{4}$ inches. Depth, $1\frac{3}{4}$ inches.

¹ See Prætorius' "Syntagma," 1618. (Leipzig, 1894, pages 55-57.)

948. HIGH TREBLE VIOL. *Par dessus* or *Quinton*.

Narrow model, the edge of the sound-board decorated with ivory and purfling. Light yellow varnish. Ebony tail-piece, sloping on the upper part. The peg-box fitted with 5 pegs and terminating in a scroll. Five strings. France. 18th Century.

Length, 1 foot $7\frac{1}{4}$ inches. Width, $6\frac{1}{2}$ inches. Depth, $1\frac{1}{2}$ inches.

1345.¹ TREBLE VIOL. Deep model with flat back sloping to the shoulders. Reddish-yellow varnish. Decorated with ink lines in place of purfling. The front pierced with two C-shaped holes, the peg-box terminating in a carved head. Six strings. The tail-piece attached by means of a hole to projecting piece of wood fixed on the outside of the end block. France. 18th Century. Labeled, "Cabroly, Toulouse, 1734."

Length, 2 feet. Width, 8 inches. Depth, 3 inches.

1344.¹ TREBLE VIOL. Similar in detail to the preceding (No. 1345). Light yellow varnish. The peg-box terminating in a scroll. Six strings. France. 18th Century. Labeled, "Jean Villiaume de Mirecourt, 1743."

Length, 2 feet 1 inch. Width, $8\frac{1}{4}$ inches. Depth, $2\frac{7}{8}$ inches.

CASES 78, 78 a.

956. BASS VIOL. Viola da Gamba. Body of bird's-eye maple, the sound-board edged with a raised line of ivory and decorated with double lines of purfling. Two C-shaped sound-holes and an additional rose with carved rosette beneath the finger-board. The neck and head apparently renewed. The peg-box terminating in a carved lion's head. Originally with 6 strings, now altered to 4. Screw peg at the bottom for supporting the instrument. Germany. 17th Century. Signed, "Joachim Tielke, Hamburg, 1690." At the top of the back the letter "T."

Length, 3 feet $4\frac{1}{2}$ inches. Width, 1 foot 2 inches. Depth, $4\frac{3}{4}$ inches.

944. ALTO VIOL. Shallow model with flat back bearing a representation, burned in the natural wood, of St. Cecilia playing the organ, surrounded by angels. The sides ornamented with scroll designs in outline. Sound-board edged with ivory and ebony inlay. Two crescent-shaped holes. The tail-piece sloping. Ebony finger-board, with an inlaid panel of light wood. The peg-

¹ Nos. 1345, 1344. See foot-note, page 64.





a.
b.

c.

d.
e.

<i>a.</i> No. 951.	Viola d'Amour.....	page 68
<i>b.</i> No. 1470.	Viola d'Amour.....	" 68
<i>c.</i> No. 1851.	Baryton, Viola di Bordone....	" 67
<i>d.</i> No. 944.	Alto Viol.....	" 66
<i>e.</i> No. 943.	Viola d'Amour.....	" 68

box decorated with ivory and ebony inlay, and terminating in a carved representation of an old man's head. Six strings and pegs. France. 18th Century.

Length, 2 feet 7 inches. Width, 9 inches. Depth, $1\frac{3}{4}$ inches.

1851. BARYTON. Viola di Bordone. Deep, flat model, with sides sloping sharply from the neck to the upper blocks. Double sound-holes on either side of elongated comma shape. The instrument is covered with dark varnish of a reddish-brown tint. Across the sound-board is placed diagonally a strong wooden bar bearing 10 pins and 10 small hooks, forming bridges. To this bar are attached 20 thin metal strings, which pass underneath the broad neck, and are attached, 10 of them, to small iron buttons, and 10 to long iron pins placed in the side underneath the long, flat head. These 20 sympathetic strings are tuned alternately by the pins in the upper peg-box and the pins in the cross-bar. On a broad bridge, attached to the tail-piece which fits upon an iron projection at the bottom of the instrument, are 7 gut and over-spun melody strings, which, passing over an ebony finger-board, are tuned by 7 pegs, placed on the right-hand side of the head, which is without scroll but decorated with a small rose. The instrument, which has seen much wear, is strengthened with ornamental and engraved plates of iron. Austria. 18th Century. On the iron plate at the back, immediately above the neck, is engraved, "J. J. S(tadlmann), 1779."

Length, 4 feet $11\frac{1}{2}$ inches. Width, 1 foot $4\frac{1}{2}$ inches. Depth, $4\frac{3}{4}$ inches.

J. J. Stadlmann made a baryton for Prince Esterhazy, the patron of Haydn, who wrote for this instrument a large number of solos.

957. NYCKELHARPA. Long, narrow sound-box of pine, stained dark, somewhat similar in shape to that of the Vielle, pierced with two open sound-holes. Flat peg-box, containing 16 wooden pegs, inserted from behind. From a long tail-piece, attached to the bottom of the instrument, are stretched 5 melody strings of gut, passing over the keys. By their side and beneath them, 11 sympathetic strings of thin wire. Twenty-two tangents act upon the first string, giving a chromatic scale of 2 octaves, from A to A, omitting the high F natural and the G sharp. Five of the keys, which give the sharps, are placed below the others. The instrument is played with a short, curved bow of black horse-hair. Norway. 19th Century.

Length, 2 feet 9 inches. Width, $5\frac{3}{4}$ inches. Depth, 2 inches.

In the 16th Century an instrument with similar tangents and played by a bow was called *Schlüsselfidel*. This instrument is similar to the *Vielle à roue*,

or *Hurdy Gurdy*, except that in the latter instrument the bow is replaced by a wheel.

951. VIOLE D'AMOUR. Narrow model, the back and sides finished with ebony and inlaid with pearl circles and figures of angels in light wood. The sound-board edged with ebony and pearl inlay. Flaming sound-holes. Tail-piece sloping, the upper part inlaid with mother-of-pearl, the finger-board similarly inlaid. The back of the neck decorated with ebony and ivory lines. The peg-box, curved and decorated with ebony and ivory, terminates in a carving representing a man's head. 14 pegs. Seven melody strings of gut, the 3 lower over-spun, and 7 sympathetic strings of thin wire, fastened to ivory pegs at the bottom of the instrument. France. 18th Century. Inscribed, "Fait par Fischeser Paul. Paris."

Length, 2 feet 8 inches. Width, 9 inches. Depth, $1\frac{3}{4}$ inches.

943. VIOLE D'AMOUR. Narrow model with flat whole back. Yellow-brown varnish. Flaming sound-holes. Peg-box fitted with 15 ornamental pegs and terminating in a simple scroll. Seven melody strings of gut and over-spun. Six metal strings, tuned by the upper pegs, pass through holes in the bridge to wooden buttons at the bottom of the instrument. Germany. 18th Century. Signed, "Nicholaus Langer, 1799. Mannheim."

Length, 2 feet 6 inches. Width, $9\frac{1}{4}$ inches. Depth, $1\frac{3}{4}$ inches.

1470. VIOLE D'AMOUR. Deep model with flat back sloping to the shoulders, the outline waved. Reddish-yellow varnish. Flaming sound-holes, and beneath the finger-board a small carved rose. Tail-piece sloping. At the top a long open peg-box, terminating in a scroll. Fourteen pegs, 7 tuning melody strings of gut and over-spun, and 7 sympathetic strings, which run beneath the finger-board and are attached to the bottom of the instrument by small brass pins. ~~Austria~~ 18th Century. Inscribed, "Luisamelehre fecit Hagg. Eberle, Prague."

Remia

Length, 2 feet 8 inches. Width, $11\frac{1}{2}$ inches. Depth, $2\frac{1}{2}$ inches.

2214. VIOLE D'AMOUR. Viol-shaped body. Light varnish. Flaming sound-holes. 5 melody strings, 6 sympathetic strings, attached to small brass pins at the end of the instrument and passing under the finger-board to the higher pegs. Scroll and upper part of the peg-box missing. Germany. Signed, "Michael Ignatius Stadlmann, Vienna, 1733."

Length, 2 feet $3\frac{1}{2}$ inches. Width, $8\frac{3}{4}$ inches.

1095. VIOLIN. Curved outline without blocks, moulded back edged with ebony and ivory lines; the front finished in a sim-

ilar way with 2 narrow, curved sound-holes. Reddish-yellow varnish. The peg-box with scroll recurved. The strings originally attached to a block fastened to the lower part of the sound-board, but now arranged in the ordinary way with tail-piece and button. France. 19th Century.

Length, 1 foot 11 inches. Width, 8 inches.

Violins of this shape were made by Chanot, Paris, in 1817, as an improvement upon the Stradivarius model.

2230. TENOR GEIGE. Narrow sound-box with moulded back, the outline being somewhat similar to that of the Viol. Brown varnish. Two S-holes and one round hole beneath the finger-board. A tail-piece is attached to a large peg at the bottom of the instrument, and the strings are tuned by 4 flat-headed pegs in a short peg-box, terminating in a carved scroll. 4 strings. Italy. c. 1600.

Length, 3 feet 3 inches. Width, $9\frac{1}{2}$ inches.

955. VIOLONCELLO. Quadrangular body of unvarnished wood, with moulded back and front, the outline tapering to the top of the sound-board. Two F-holes. The end of the peg-box curved and terminating in a flat piece of wood. The bridge pierced with ornamental holes. Four black decorative pegs. At the base a large peg for supporting the instrument. Italy. 18th Century. Signed, "Vinaccia, Napoli, 1779."

Length (without peg), 3 feet 8 inches. Width, 10 inches.

2716. VIOLA POMPOSA. Body viola form with moulded back and usual F holes, but without corners and the upper and lower bouts much widened. Deep sides without overlapping edges. Reddish-brown varnish. Long head terminating in a large scroll. Five strings attached at the bottom of the instrument to a broad tail-piece. Ebony finger-board. The name "Hopf" stamped below the button. Germany. c. 1800.

Total length, 2 feet 7 inches. Width across lower bout, 1 foot 1 inch; across inner bout, $6\frac{3}{4}$ inches; across upper bout, $11\frac{1}{4}$ inches. Depth of sides, $2\frac{3}{4}$ inches. Length from nut to bridge, 1 foot 6 inches.

The name "Viola Pomposa" is supposed to have been given by Bach to a five-stringed viola of large size; the strings are said to have been tuned as in the viola, the additional string being E as in the violin. Compositions by Bach and Telemann (Hamburg, 1728) are extant for this instrument, which has quite disappeared.

For description of Nos. 2391 and 1814, see Class V, page 244.

CASE 79.

1800. **HARDANGER VIOLIN.** Violin-shaped box, highly decorated with inlaid mother-of-pearl and ink scroll-work designs on back, front and sides. Light brown varnish. F sound-holes. Ebony tail-piece, inlaid with mother-of-pearl and ivory. Finger-board similarly decorated. Narrow peg-box, containing 8 inlaid pegs and terminating in a carved leaf ornament in front of which is placed a crowned head. Bow attached. Norway. 19th Century. Maker, Engel A. Godsen, 1896.

Length, 2 feet 1 inch. Width, 8 inches. Depth, $1\frac{1}{2}$ inches.

962. **HARDANGER VIOLIN.** Violin-shaped box of light yellow varnish, the edges decorated with painted lines. F sound-holes. The model is so high in the centre that the bass-bar is exposed to view. Tail-piece decorated with ebony and ivory inlay. Peg-box fitted with 8 pegs and terminating in a carved representation of a human head. Four melody strings of gut, the lowest over-spun, and 4 sympathetic strings of wire, attached to long brass hooks, passing through holes in the tail-piece. Bow attached. Norway. 19th Century.

Length, 1 foot $10\frac{1}{4}$ inches. Width, $7\frac{1}{4}$ inches. Depth, $1\frac{1}{2}$ inches.

1801. **HARDANGER VIOLIN.** Violin-shaped box of yellowish-brown varnish. F sound-holes. Tail-piece of ivory, carved and decorated. Finger-board inlaid with mother-of-pearl. Long peg-box, with 18 pegs, terminating in a scroll. Four melody strings of gut and over-spun, and 12 sympathetic strings of thin wire passing under the finger-board, across a straight bridge underneath that of the gut strings, and fastened to the tail-piece by a series of small hooks. Norway. 19th Century. Maker, A. O. Elkid, Trondhjem.

Length, 2 feet 5 inches. Width, 8 inches. Depth, $1\frac{1}{4}$ inches.

2704. **VIOLIN HORN.** Instrument of usual violin form fitted with sound-post and bar, but having many folds of slightly conical brass tubing concealed within the body. The upper end of the tube passes through the neck and issues at the back of the scroll, where a mouthpiece of French Horn shape is inserted. The other end of the tube widens within the body into a flattened rectangular bell, which takes the place of the usual block at the bottom of the violin. Four pegs, tipped with ivory, and four strings which pass over the usual bridge and are attached to a tail-piece bearing on a



No 2704.

Violin Horn.

Page 70

square metal plate the initials "F. P. W.," with design of a horn and a trumpet. The horn is in F, and when the instrument is held vertically on the knee and played in violoncello fashion the horn can be sounded at the same time. Austria. 18th century. Reproduction. Original in the Museum Carolino Augusteum, Salzburg.¹

Length of instrument, 1 foot 11¾ inches. Greatest width, 8½ inches. Depth of ribs, 1⅝ inches.

2426. VIOLE D'AMOUR. Mute. Narrow, viol-shaped body, without sides. Dark varnish. 2 flaming sound-holes. Long peg-box, with pierced carving, terminating in representation of a blind Cupid. Twelve pegs. Six melody strings, attached to the six lower pegs, and 6 sympathetic strings, passing under the finger-board, attached to the 6 upper pegs. Germany. c. 1700.

Length, 2 feet 3½ inches. Width, 4½ inches.

2721. VIOLA. Mute. A skeleton body with back and sound-board omitted, the framework in curved outline of the viola. The usual finger-board with peg-box terminating in a scroll. Five strings fastened to a tail-piece at the bottom of the instrument. Italy. 19th Century.

Length, 1 foot 2 inches. Width at base, 9½ inches. Width at shoulders, 8 inches.

2720. VIOLIN. Mute. Similar to preceding but of smaller dimensions and bearing the outline of the violin. Reddish brown varnish. Italy. 19th Century.

Length, 12 inches. Width at base, 8½ inches. Width at shoulders, 7 inches.

1564. VIOLIN. Mute. A narrow, rectangular body, with sound-board extended over the sides and somewhat similar to that of the violin, but with waved outline, decorated with a geometrical rose and ornamented with pearl studs. The peg-box terminating in a flat piece of wood. Nuremberg, Germany. 18th Century.

Length, 1 foot 10 inches. Width, 7½ inches.

982. REBEC. Lyra. Pear-shaped body, composed of 9 strips of colored wood, inlaid with black and white lines. Sound-board with 2 semi-circular holes of fantastic outline and inlaid with 2 cross-pieces of dark wood. Short head, terminating in a flat piece of wood. Four pegs inserted from behind, furnished with 4 gut strings, passing over a movable bridge. There are no

¹ The reproduction of this instrument (No. 2704) was procured through the courtesy of Dr. Petter, Director of the Museum Carolino Augusteum at Salzburg.

frets on this instrument. Greece. 19th Century. Maker, T. Maurouoff, Athens.

Length, 1 foot 6 inches. Width, $5\frac{1}{2}$ inches.

Though bearing the name of Lyra, this instrument is played with a bow.

984. REBEC. Lyra. Pear-shaped body, made of a solid piece of wood, hollowed out in its lower part, the extension of which forms the neck and head. Three strings, passing through holes in a short flat peg at the bottom of the instrument, are attached to 3 wooden pegs inserted from the back of the flat, carved wooden head. The second string passes over a peg, which acts as a nut. The sound-board has 2 small holes, and the front of the instrument is decorated throughout with small studs of light wood, inlaid. The sound-board is not provided with frets. A small bow ornamented with bells. Crete. 19th Century.

Length, 1 foot $7\frac{1}{2}$ inches. Width, 6 inches.

514. REBEC. Similar to the preceding, but of rough workmanship, the finger-board inlaid with geometric designs, the peg-box terminating in a flat piece of wood. Three strings. Moorish. 18th Century. Spain.

Length, 1 foot 8 inches. Width, 5 inches.

2268. REBEC. Body pear-shaped, with neck and head formed of one solid piece of wood, the lower part hollowed out. In the sound-board, which is fixed over the hollow cavity, are two F-holes. Three gut strings, fastened to a tail-piece and passing over a movable bridge, are attached to 3 wooden pegs in the peg-box, which projects over the sound-board, and terminates in a representation of a human figure. France. 16th Century. Reproduction.

Length, 1 foot $11\frac{1}{2}$ inches. Width, $5\frac{1}{2}$ inches.

This instrument, known as the *Kleine Geige*, is supposed by some to have given the name to the dance called "jig," for which it commonly provided the music.



a.

b.

c.

d.

e.

FAMILY OF VIOLINS.

Page 73.

a. No. 941. Double Bass.

b. No. 1856. Violoncello.

c. No. 942. Tenor Violoncello.

d. No. 940. Viola or Alto.

e. No. 960. Violin.

CASES 79 a, 80 a.

FAMILY OF VIOLINS.

These five instruments, Nos. 941, 1856, 942, 940 and 960, form a complete set of the *Violin family*, which is distinguished from that of the Viols by the round or moulded back, the stringing (four strings only), the familiar F-shaped sound-holes, and other characteristic differences. The small set, or quartet, is composed of two violins (playing treble and alto), one viola (tenor), one violoncello (bass).

941. DOUBLE BASS, or Contra Bass. Deep model with flat back, the outline viol-shaped. Two F sound-holes. Four strings passing to 4 patent tuning pegs turned by large thumb screws attached to the peg-box, which terminates in a scroll. Germany. 18th Century.

Length, 6 feet. Width, 2 feet 2 inches. Depth, $8\frac{1}{2}$ inches.

This instrument and the following (No. 1856) were played in a church in Stonington, Conn., in the 18th Century. The bow was made by Dragonetti.

1856. VIOLONCELLO. Moulded half-back. Yellowish varnish. Two F sound-holes. The peg-box terminates in a scroll, fitted with 4 pegs, turned by patent screws and thumb-pieces at the back. Four strings. Europe. 18th Century.

Length, 4 feet. Width, 1 foot $4\frac{1}{4}$ inches. Depth, $4\frac{3}{4}$ inches.

942. TENOR VIOLONCELLO. Moulded whole-back. Dark brown varnish. Two F sound-holes. Peg-box terminating in a scroll. Four strings. Europe. Early 19th Century.

Length, 2 feet 8 inches. Width, $12\frac{1}{2}$ inches. Depth, 4 inches.

This instrument is really a half-sized Violoncello. It represents the proper size for the tenor instrument of the violin family, which is now discarded.

940. VIOLA or ALTO. Moulded half-back with F sound-holes. Peg-box terminating in a scroll. Yellowish-red varnish. Europe. 19th Century.

Length, 2 feet $1\frac{1}{2}$ inches. Width, 9 inches. Depth, $1\frac{3}{8}$ inches.

A copy after Stradivarius of Cremona.

960. VIOLIN. Moulded half-back. Reddish-brown varnish. Two F sound-holes. Back terminating in a scroll. Europe. 19th Century.

Length, 1 foot 11 inches. Width, 8 inches. Depth, $1\frac{1}{2}$ inches

A copy after Stradivarius.

CASE 80.

961. **POCHETTE.** Shallow body with moulded slab back without corner blocks. Reddish-yellow varnish. F sound-holes. Scroll of peg-box missing. France. c. 1700.

Length, 1 foot 5 inches. Width, $4\frac{1}{4}$ inches.

969. **VIOLE D'AMOUR.** Shallow case with flat back. Reddish-brown varnish. The blocks without sharp angles, the sound-board edged with ebony and ivory inlay. Flaming sound-holes. The tail-piece with sloping top; peg-box with 12 ivory pegs, terminating in a carved female head. Six melody strings and 6 sympathetic strings, passing under the keyboard, are fastened to ivory pins at the bottom of the instrument. To the instrument is attached a miniature bow. France. 18th Century.

Length, 2 feet $6\frac{1}{4}$ inches. Width, 3 inches. Length of bow, $12\frac{1}{2}$ inches.

963. **POCHETTE D'AMOUR.** Shallow box with sloping shoulders and light yellow varnish. The back and front edged with ebony and ivory inlay. Flaming sound-holes. Long peg-box, with 9 pegs, decorated in black and white ivory inlay on either side, and terminating in a blindfolded head. Five melody strings and 4 sympathetic strings, tuned by the higher pegs. France. 18th Century.

Length, 1 foot 7 inches.

964. **POCHETTE.** Viol-shaped body with tapering shoulders. Ivory sides and flat wooden back. Yellow varnish. Curved sound-holes. Tail-piece, finger-board, neck and head inlaid with colored woods; the head terminating in an inlaid plaque. France. Early 18th Century.

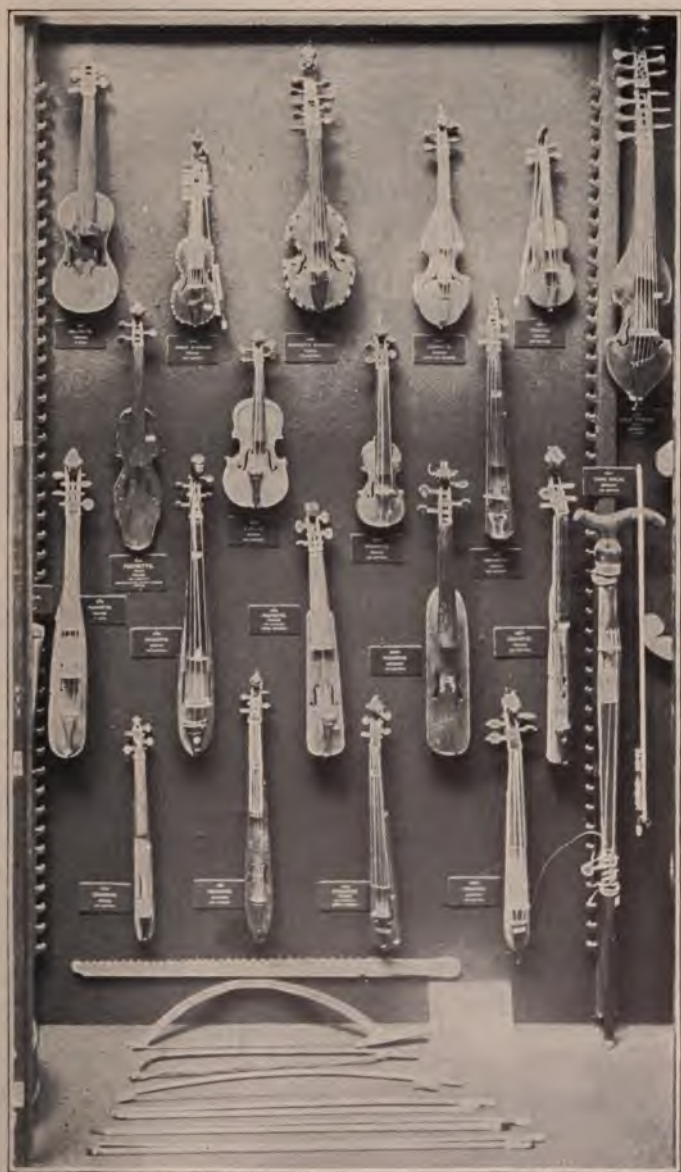
Length, 1 foot $2\frac{1}{2}$ inches. Width, $3\frac{3}{4}$ inches.

967. **VIOLIN.** Miniature. Shallow body with moulded back, inlaid with ivory sides; corner blocks without points. F sound-holes. Finger-board inlaid with colored woods and ivory. Peg-box terminating in a bird's head. France. 18th Century.

Length, 12 inches. Width, $3\frac{1}{4}$ inches.

945. **POCHETTE.** Mute. A flat body of fantastic outline, without sides. F sound-holes. Red varnish. The peg-box terminating in a scroll. France. 19th Century. Reproduction, the original instrument having been the work of Stradivarius.

Length, 1 foot 5 inches. Width, $3\frac{1}{4}$ inches.



Case 80,

Pochettes, pages 74, 75, 76.

Collection of Bows, pages 244, 245.

965. VIOLIN. Miniature. Usual outline with moulded back. Yellow varnish. F sound-holes. The head terminating in a scroll. France. 18th Century.
Length, 12 inches. Width, $4\frac{1}{4}$ inches.
966. POCHETTE. Violin-shaped body, the back, sides, neck and head being made of one piece of wood. Light brown varnish. F sound-holes. The peg-box terminating in a scroll. Italy. 18th Century.
Length, $13\frac{1}{2}$ inches. Width, $3\frac{1}{2}$ inches.
971. POCHETTE. A narrow, tapering case, the back formed of 5 strips of wood. Dark red varnish. Ivory tail-piece. C sound-hole. The peg-box terminating in a grotesque head. Ivory pegs. France. 18th Century.
Length, 1 foot $4\frac{1}{2}$ inches. Width, 2 inches.
973. POCHETTE. Oval body with rounded back. Two straight sound-holes. Brown varnish. Flat finger-board. The peg-box terminating in a scroll. France. c. 1700.
Length, 1 foot $8\frac{1}{2}$ inches. Width, $2\frac{1}{2}$ inches.
972. POCHETTE. Boat-shaped body, the back of ebony inlaid with mother-of-pearl and four plaques of colored woods. Straight sound-holes. Finger-board inlaid with mother-of-pearl and the sides of the neck similarly decorated. The peg-box terminating in a grotesque head. France. 17th Century.
Length, 1 foot 9 inches. Width, $3\frac{1}{2}$ inches.
976. POCHETTE. Narrow, oblong case with seven-sided back. F sound-holes. Peg-box terminating in a flat scroll. Reddish-brown varnish. France. 17th Century.
Length, 1 foot $5\frac{1}{4}$ inches. Width, $2\frac{1}{2}$ inches.
Drexel Collection.
2400. POCHETTE. Oval-shaped body with crescent-shaped sound-holes. Dark red varnish. Four strings. The peg-box terminating in a carved scroll. Germany. 19th Century. Maker, Trieber, Mittenwald, 1813.
Length, 1 foot 8 inches. Width, 3 inches.
1587. POCHETTE. A narrow body with rounded back of ivory, inlaid with four black lines. Sound-board rising in the centre. 2 diamond-shaped sound-holes. Open peg-box of ebony, placed at an angle, terminating in a scroll and carved head. Four ivory pegs. Europe. 18th Century.
Length, 1 foot $9\frac{1}{2}$ inches. Width, $1\frac{1}{2}$ inches.

970. **POCHETTE.** Narrow, boat-shaped case, five-sided back of ebony. Straight sound-holes; in the upper part a small heart-shaped hole. The peg-box terminating in a small head in stained ivory (not original). Four wooden pegs. France. 17th Century.

Length, 1 foot $3\frac{1}{4}$ inches. Width, $1\frac{1}{4}$ inches.

974. **POCHETTE.** Narrow, boat-shaped case, reddish-brown varnish, the back with 6 flutes, inlaid with ivory lines. Flaming sound-holes, with an additional heart-shaped hole in the upper part. Finger-board inlaid with ivory lines. The peg-box terminating in a carved head. Germany.

Length, 1 foot 6 inches. Width, $1\frac{3}{4}$ inches.

975. **POCHETTE.** Narrow, tapering case, the back formed of 5 strips of wood, inlaid with black and white lines. C sound-holes. Tail-piece and finger-board of ebony, inlaid with light lines. Head terminating in a scroll, with four ivory pegs. France. 18th Century.

Length, 1 foot 5 inches. Width, $1\frac{3}{4}$ inches.

Drexel Collection.

2290. **POCHETTE.** Boat-shaped case, the fluted back and sides of 7 strips of wood, with inlaid ivory lines. Below the tail-piece a carved angel's head. Light varnish. Long C-shaped sound-holes. Ebony tail-piece, inlaid with colored woods; the neck of ebony, similarly inlaid. Four strings. The peg-box decorated with carving and terminating in a human head. Germany. 18th Century.

Length, 1 foot $5\frac{1}{2}$ inches. Width, $1\frac{1}{2}$ inches.

950. **CANE VIOLIN.** A narrow instrument of small size made in imitation of a walking stick, furnished with an ornamental handle. The strings are tuned by small iron pins turned with a key. When not in use a short bow slips within the stick, and a round cover, held by metal bands, conceals the instrument. Germany. 19th Century.

Length, 2 feet 11 inches. Greatest width, $1\frac{3}{4}$ inches.

1565. **CANE VIOLIN.** Similar to preceding. Germany. 19th Century.

Length, 2 feet $4\frac{1}{2}$ inches. Width, $1\frac{3}{4}$ inches.

For description of No. 2694, see Class V, page 244.

CASE 81.

977. BOWED ZITHER. Narrow case, extended at the back into a wing-shaped sound-box, painted in gilt, with an ornamental rose. The sound-board has a diamond-shaped sound-hole. Attached to the bottom of the instrument is a large tail-piece of ebony, furnished with 4 tuning pins; at the other end the neck is prolonged into a narrow head, terminating in a reflex scroll, and having 4 metal tuning pins. Four pairs of metal strings pass over a movable bridge and are tuned alternately by the pins in the head and tail-piece. Germany. 19th Century.

Length, 1 foot 11½ inches. Depth, 12 inches.

1057. VIELLE. Hurdy Gurdy. A small instrument in guitar form, with 2 crescent-shaped sound-holes at the lower end. Two strings, one melody, pass over the keys and wheel, a drone string on either side. Four pegs inserted. Ebony keys. Tangents diatonic. Head carved with representation of a human figure. France. 19th Century.

Length, 1 foot 4½ inches. Width, 7 inches.

A thousand years ago the *Vielle* or *Hurdy Gurdy* was known as the *Organistrum*, and was often of so large a size that it could be manipulated by two performers, one turning the wheel, the other touching the keys. Owing to its use by beggars it became known as the *Beggar's Lyre*.

The *Vielle en luth* (in lute shape) was considered superior in tone to the *Vielle en guitare* (in guitar shape). For this reason many of the old lutes were altered into Vielles.

2479. VIELLE. Hurdy Gurdy. Broad, viol-shaped body, painted red, with flat back. On the lower part of the sound-board one small C-shaped hole. Carved tail-piece, with 2 strings passing over the keys, and sounded by a wheel fixed within the instrument and turned by a handle at the bottom. An additional drone string on either side, also sounded by the wheel. The head fitted with 4 large pegs, placed in front. Finger-board and tangent mechanism missing. Tangent cover renewed. Russia. 17th Century.

Length, 2 feet 5 inches. Width, 1 foot 4 inches.

1055. VIELLE. Hurdy Gurdy. A flat case with festooned outline. Two strings, one melody, passing over the keys; on either side a drone. Flat head, with 4 pegs inserted in front. Keys diatonic. On the lid of the tangent box, at the bottom of the sound-board, two straight posts. Germany. Early 18th Century.

Length, 2 feet. Width, 8½ inches.

1058. **VIELLE.** Hurdy Gurdy. Guitar-shaped body, front edged with ebony and ivory inlay. Carved bridge and inlaid tail-piece. Two strings, one for the melody, pass over the keys and are sounded by the wheel, which is turned by a handle. On either side 2 drone strings. The head is curved, and terminates in the representation of a human figure. Six pegs inserted from the front. Twelve tangents, attached to wooden keys moved by the fingers, give the diatonic scale. The tangent mechanism is enclosed within a box having an inlaid cover. Germany. 18th Century.

Length, 1 foot 11 inches. Width, 11 inches.

1059. **VIELLE.** Hurdy Gurdy. Pear-shaped body, as in the lute, the back formed of 9 strips of light and dark wood, the front edged with ivory and ebony inlay. Two crescent-shaped ornamental sound-holes at the lower end. Inlaid tail-piece. Two strings pass over the keys, each of which sounds the melody; on either side 2 drones. Six pegs are inserted in the front of the head, which terminates in a carved representation of a human figure. The tangents and keys arranged chromatically, as in No. 2148. France. 18th Century.

Length, 2 feet. Width, 11 inches.

2148. **VIELLE.** Hurdy Gurdy. Guitar-shaped body, the front edged with ebony and ivory inlay. At the lower part of the sound-board, 2 ornamental crescent-shaped sound-holes. Two strings pass over the wheel and keys, each of which sounds the melody. On either side 2 drones. Six pegs, the head terminating in a human figure. Double row of tangents, chromatically arranged, the naturals being represented by black keys, the sharps arranged in front of them by flat ivory touches. A screw, placed in the rigid tail-piece, brings into action, when desired, a vibrating metal string called the trumpet drone. The wheel is covered with a shield of thin wood. France. 19th Century. Maker, Colson, Mirecourt.

Length, 2 feet 1 inch. Width, 10 inches.

For description of No. 2232, see Class V, page 245.

CASE 81 a.

2291. **VIOLIN.** A shallow case in one piece, with flat back and forked base; on each side of the bridge 2 bosses. 4 strings, tuned by metal pins, inserted on a brass plate, attached to a flat head. Sound-hole C-shaped. Evidently a grotesque adaptation of the violin. Germany. 19th Century.

Length, 1 foot 8½ inches. Width, 4½ inches.

2292. BANJO VIOL. Oval case, the front and back being formed of parchment, tightened by brass screws at the sides. Violin neck and head, with 4 strings. Germany. 19th Century.
Length, 2 feet 2 inches. Width, 9 inches.

2206. VIOLIN. Body of the usual form, made of thin brass. F sound-holes. Wooden neck and peg-box, terminating in a scroll. Ebony finger-board. 4 strings. Germany. 19th Century.
Length, 1 foot 11½ inches. Width, 8½ inches.

959. VIOLIN. Trapeze-shaped box, tapering toward the upper part, with flat back; 2 narrow, straight sound-holes. 4 strings. The neck and scroll as in the ordinary violin. France. 19th Century.

Length, 1 foot 10½ inches. Width, 8 inches.

This form of the Violin was suggested by Savart in 1818, and at the time of its invention met with much approval.

1113. VIOLA. Shallow model with moulded back, of curved outline, with no upper blocks; the shoulders sloping, describing an S-shaped curve to the lower blocks. Yellowish varnish. 4 strings. Peg-box terminating in a carved lion's head. Germany. 19th Century.

Length, 2 feet 3 inches. Width, 11¼ inches. Depth, 1¾ inches.

1899. BOWED ZITHER. Philomele. Body in fantastic outline, suggestive of the violin, resting on 3 ball feet of ivory. Sound-board, with 2 F sound-holes, with purfling. 4 metal strings, attached by wires to the end of the instrument, pass over an ebony bridge and are tuned by four metal pegs, with patent mechanism, placed in a flat head. Ebony finger-board; 27 metal frets. Germany. 19th Century.

Length, 1 foot 10½ inches. Width, 10½ inches.

998. BOWED ZITHER. Streich-Zither. A narrow, heart-shaped box decorated with inlaid woods, standing on three ivory legs. Two sound-holes. 4 strings pass over a brass bridge and are tuned by metal pins placed in a small, flat head. Finger-board with 29 brass frets. Pearl studs indicate the position of the tonic, third, fifth and seventh of the scale. Austria. 19th Century.

Length, 1 foot 7 inches. Width, 10½ inches.

2708. BOWED ZITHER. Solophon. A shallow sound-box, straight on one edge, the opposite side of curved outline. 22 metal frets on the finger-board. 2 wire strings. Ivory studs arranged in a wooden frame over the strings indicate the notes. Germany. 19th Century.

Length, 1 foot 10 inches. Width, 1 foot 1 inch.

CLASS I. STRINGED INSTRUMENTS.

DIVISION II. WITH A KEYBOARD.

TYPE CASE

ILLUSTRATING THE DEVELOPMENT, FROM THEIR PROTOTYPES, THE PSALTERY AND THE DULCIMER, OF THE TWO MAIN TYPES OF KEYBOARD STRINGED INSTRUMENTS, *i. e.*, PLUCKED AND STRUCK STRINGS.

GALLERY 25. CENTRAL CASE.

The other instruments in this case not described under this section will be found as follows:

Nos. 1820, 1211, Class IV, Division I, page 220.

Nos. 1201, 1210, 1202, Class IV, Division II, page 239.

No. 2514, Class V, page 249.

PLUCKED STRINGS.

For other examples of the Psaltery, see page 56 ; of the Spinet and Harpsichord, pages 84-88.

1002. PSALTERY. Trapeze-shaped case with gilt beading, strung with 96 wire strings, arranged in 24 sets of 4, passing over brass bridges at either side of the instrument, and plucked with the fingers, or small plectra of bone or metal. The sound-board pierced with 2 open holes. The tuning pins arranged on the right-hand side. The case in which the instrument is placed is painted with scroll-work, musical instruments, and figures on a buff ground; the interior of the cover having an interesting painting of players on all kinds of musical instruments. Tyrol. 18th Century. In the instrument is the following label: "Joannes Antonius Berero, Trent, 1745."

Length, 2 feet 8 inches. Width, 1 foot 3 inches. Depth, 5½ inches.

The Psaltery is placed at the head of this section as being the predecessor of the keyboards with *plucked* strings.



No. 2527.
Spinet.
Page 81.

2527. SPINET. Compass, four octaves, C to C; lowest octave short. Outer case pentagonal, resting on a three-legged stand, and decorated with gilt gesso work on a green ground, the interior of the cover ornamented with a painting representing a boating scene. The instrument, which is removable from its outer case, is of cedar wood decorated with ivory studs, and has the projecting keyboard. The sound-board has a single pierced rose. Keys, light wood naturals with black sharps (renewed). Leather plectra. Maker, Domenico di Pesaro (Domenicus Pesarensis). Italy. 1561.

Length, 4 feet 8 inches. Width, 1 foot 7 inches. Depth, $7\frac{1}{2}$ inches.

1220. HARPSICHORD. Compass, 4 octaves and a sixth—A to F. A long, trapeze-shaped instrument of cedar wood, enclosed in an outer case, resting on three solid legs, elaborately turned and gilded. The sides of the case painted with conventional ornaments and a coat of arms; the exterior of the cover ornamented with scroll-work, the interior with representations of birds, flowers and Cupids with musical instruments on a gilt ground. The sound-board has a single rose. Keys, box-wood naturals, with black sharps. There are two rows of jacks, acting on two unison strings, their ends projecting through the right-hand side of the case. Leather plectra. Inscription: "Hieronymus Zenti Fecit Romæ A. S. MDCLXVI." And "Johannes Ferrini Florentinus Restauravit MDCCLV." Italy. 1666. Maker, Jerome de Zentis.

Length, 7 feet $9\frac{1}{2}$ inches. Width, 3 feet.

This instrument was restored by John Ferrini in 1755.

The Harpsichord is known in Italy as the "*Clavicembalo*," and in France as the "*Clavecin*" while the early English name was "*Clavicembalo*," or "*Harpichordum*."

2363. HARPSICHORD. Double-banked. Compass of both key-boards, 4 octaves and a fifth—F to C. A long, trapeze-shaped case supported on a wooden stand with 7 legs, finely decorated with carving and gilt gesso work. The outside of the case painted with flowers and conventional ornament on a gilt ground. The interior of the case ornamented with black scroll tracery on a gilt ground. The sound-board, with a single rose, is somewhat similar to that adopted by Ruckers. The keys, naturals of rounded ivory, with gilded fronts; sharps black. 4 rows of jacks, acting on 3 strings, 2 unison, 1 octave, the fourth row acting on the first string; a lute stop. The jack of the lute stop, by plucking the string close to the bridge, gives the reedy tone, which was much

employed by performers on the lute. The vibrating length of the longest unison wire is 5 feet $6\frac{3}{4}$ inches. The vibrating length of the shortest unison wire $6\frac{1}{4}$ inches. The octave wires are half the above length. The upper keyboard acts on the first string and with the lute stop; the lower keyboard on the first, second, and third strings without the lute stop. The sliders are worked by small brass knobs, which project through the right-hand side of the case. Quill plectra. Flanders. c. 1650. Maker, Joannes Couchet.

Length, 7 feet 6 inches. Width, 2 feet 10 inches. Depth, $10\frac{1}{2}$ inches.

Jan Couchet was a nephew of Jean Ruckers. See Hipkins' "*History of the Pianoforte*" (London, 1896), pp. 82-84.

2359. HARPSICHORD. Triple-banked. Compass of each keyboard 5 octaves—F to F. A trapeze-shaped case, wholly gilt, supported on a 5-legged stand, decorated with elaborate carvings and pierced scroll-work in Louis XV style. The exterior of the case painted with conventional ornaments and medallions representing Cupids and flowers. The outside of the cover bears a coat of arms, 3 crescents (or) grouped on a shield (azure), the arms of the Strozzi family. The interior has a medallion representing a love scene. The upper front-board has the following inscription engraved on an ivory plaque: "Vincentius Sodi Florentinus Fecit—Anno Domini 1779," with two coats of arms of the Strozzi family and that of the city of Florence. Keys, ivory naturals with ivory fronts; sharps, dark brown wood with 2 ivory lines. Each keyboard projects slightly over the one below, there being no front-boards between them. The sound-board has no rose. Three rows of jacks, with 3 sets of strings (2 unison and 1 octave). The vibrating length of the longest unison string is 5 feet $2\frac{1}{2}$ inches; that of the shortest $6\frac{1}{2}$ inches. The octave strings are half this length. The upper keyboard acts on the octave strings; the middle keyboard on one unison and the octave; the lower keyboard on the two unison strings. No stops or means of shifting the sliders. Leather plectra. Italy. 1779. Maker, Vincentius Sodi.

Length, 7 feet. Width, 3 feet 5 inches. Depth, $9\frac{3}{4}$ inches.

This specimen of a triple-banked harpsichord was apparently made to obviate the use of stops, and is probably unique.



No. 2359.

Harpsichord, Triple-banked.

Page 82.



No. 1216.
Clavichord.
Page 83.

TYPE CASE—*Continued.*SPECIMENS ILLUSTRATING THE DEVELOPMENT OF
STRUCK STRINGS.

For other examples of the Dulcimer, see page 59; of the Clavichord and the Piano, pages 90-96.

1440. **DULCIMER.** 22 double strings, giving a diatonic scale of 3 octaves—F to F. A black oblong case, standing on 4 legs, ornamented with decorative beading. Sound-board bearing a central bridge and having 2 pierced sound-holes. U. S. A. Early 19th Century. Maker unknown.

Length, 3 feet 5 inches. Width, 18 inches. Depth, 6½ inches.

The Dulcimer is placed at the head of this section as being the predecessor of the keyboards with *struck* strings.

1216. **CLAVICHORD.** Compass, 28 notes. An oblong outer case of gilded wood decorated with foliage, the inside of the cover decorated with paintings of flowers, enclosing the instrument, which is of black wood. The sound-board has two sunken roses, and the front-board, which is inlaid with ivory, bears the arms of the Medici family. The projecting keyboard has ivory naturals and black sharps. This instrument has one string to each tangent and also an additional sharp between B and C in the highest octave. It is impossible to say whether this was the original arrangement of the keys. Italy. c. 1600. Maker unknown.

Length, 2 feet 8 inches. Width, 1 foot 9 inches. Depth, 5 inches.

The mechanism of the tangent striking the string, and so producing a musical note, was probably derived from the early monochords with their movable bridges.

2147. **PIANO.** 5 octaves—F to F. Oblong mahogany case, ornamented with raised brass lines and resting on 4 turned legs. Keys, ivory naturals, with black sharps. Bi-cord throughout. This instrument originally had 2 knee or pedal levers, the invention of Erard, in 1794, which, respectively, raised the damper and muted the strings by lifting a beam covered with soft leather. France. 1800. Makers, Erard Frères et Cie, Rue du Mail, No. 37a, Paris.

Length, 4 feet 10½ inches. Width, 2 feet. Depth, 8 inches.

SECTION A. PLUCKED STRINGS.

GALLERY 27. CENTRAL CASE.

For examples illustrating development of this class, see pages 80-82.

1230. SPINET, or VIRGINAL.¹ Compass, four octaves and one note, C to D; lowest octave short. Quadrangular (the left side shorter than the right) supported on a four-legged stand and enclosed in an outer case decorated with stamped leather in blue and gold; the interior of the cover ornamented with painted birds and flowers and a sacred subject, below which is the motto "Bona Est Oratio Cum Jejuniis et Eleemosina." The instrument, which is removable from its outer case, has the projecting keyboard characteristic of the early spinets. The sound-board has a sunken rose. Keys, stained wood naturals with black sharps. Leather plectra. Maker unknown. Italy. c. 1550.

Length, 2 feet 9 inches. Width, 1 foot 6 inches. Depth, 6½ inches.

This instrument is of particular interest inasmuch as the wrest-pins, being placed directly over the keyboard, distinguish it as a *Spinetta Traversa*, which is more rare than the *Spinetta Tavola*, in which the wrest-pins are placed at the right-hand side as in the Clavichord.

2765. SPINET, or VIRGINAL. Three octaves and a sixth—C to A. Oblong case, supported on a four-legged stand, the exterior decorated with gilding and painted scroll-work, the interior of lid bearing a winged lion. The instrument, which is removable from its case, is pentagonal, with a projecting keyboard, and studded with ivory. Beautiful carvings in ivory over the keyboard. Keys, ivory naturals with black sharps inlaid with ivory. Sound-board with a single beautifully cut rose. A removable silk screen for protecting the action. The original plectra have been replaced by slips of wood. Inscribed, "Franciscus Bonafinis, 1585," also "After a lapse of 132 years, Repaired by me N. N. the year 1717." Italy, 1585.

Length, 3 feet 3 inches. Width, 2 feet. Depth, 1 foot.

¹ In the 16th Century all forms of this class of instruments were in Italy designated as "*Spinetta*," in England as "*Virginal*," although Prætorius refers to the pentagonal form as the Virginal. When the *Spinetta Traversa* was adopted as the English post-Restoration model in the 17th Century (see Nos. 1212, 1223, page 86), and came into popular use in England, the name "Virginal" was more particularly applied to the oblong or rectangular form, the *Spinetta Tavola*. See special introduction to keyboards, page xxiii.



No. 1196.
Double Spinnet, or Virginal.
Page 85.

1209. SPINET, or VIRGINAL. Four octaves, C to C; the lowest octave with cut sharps giving F sharp, D, G sharp, E (a later addition). The instrument itself is pentagonal, with a projecting keyboard, and is enclosed in an oblong case, the interior of the cover painted with scroll-work, two coats of arms and a group of dancing boys. Keys, light wood naturals, with black sharps (renewed). Leather plectra. Maker unknown. Italy. 16th Century.

Length, 5 feet 4 inches. Width, 1 foot 6 inches.

1925. MODEL OF SPINET ACTION, showing the quilled jack on key.

2344. SPINET, or VIRGINAL. Compass, four octaves and a third—C to E. The lowest octave short; upper D sharp omitted. Oblong, supported on a four-legged stand, decorated with characteristic paper of the Flemish School. The sound-board painted with flowers and fruit; the interior of the cover bearing the motto, "ACTA VIRUM PROBANT." Keys, ivory naturals, with black sharps. Quill plectra. Flanders. c. 1600. Cristofel Ruckers (C. R.) on the usual Ruckers' rose.

Length, 3 feet 8 inches. Width, 1 foot 5 inches. Depth, 8 inches.

Instruments made by Cristofel Ruckers are exceedingly rare, only one other specimen at present being known.

- 1196.¹ DOUBLE SPINET, or VIRGINAL. Compass of the larger, four octaves and a fourth—G to C; lowest octave short. Compass of the smaller, four octaves—C to C. Oblong case, the interior of which is decorated with gilding and painted scroll-work. The inside of the cover has a painting in excellent condition, representing the combat between David and Goliath, and the triumph of David, who is received with music. The large front-board bears the motto, "SCIENCIA NON HABIT INIMICUM NISI IGNORANTEM;" while the front-board of the smaller instrument, inserted in the case to the right of the keyboard, bears the motto, "ARS USU IVVANDA." The sound-boards of both instruments are painted with flowers and fruit, each with a rose bearing the initials "L. G.," and representing Pan blowing an organ with his mouth. Keys, ivory naturals with black sharps, the latter finely inlaid. Quill plectra. Flanders. 1600. Maker, Ludovicus Grovvelus.¹ The small movable spinet,

¹ Mentioned in "Correspondance de Constantin Huygens," Jonkbloet et Laud, Leyden, 1882.

or ottavina, which was wanting, is a reconstruction, modeled after the larger instrument by Mr. Arnold Dolmetsch, of London.

Length, 6 feet 3 inches. Width, 1 foot 8 inches.

The Double Spinet is exceedingly rare, there being but two other such instruments known; one, by Hans Ruckers, the elder, is owned by Mr. Morris Steinert,¹ and the other, by Martin Vander Beest, dated 1580, is at Nuremberg.²

1778. OCTAVE SPINET, or VIRGINAL. Compass, three octaves—F to F, the lowest G sharp, and F sharp omitted. An oblong case of black wood, the interior of cover ornamented with painting on paper, representing scenes in the life of Daniel and Tobias. In the centre a female head. Keys, ivory naturals, with black sharps. Quill plectra. Italy. 17th Century. Maker unknown.

Length, 1 foot 6 inches. Width, 9 inches.

1227. OCTAVE SPINET. Compass, 2 octaves and a fourth—G to C. The instrument, which is pentagonal, is enclosed in an outer case, decorated with foliated scroll-work and a coat of arms. Keys, ivory naturals, with black sharps. Quill plectra. Instrument removable from the outer case. Italy. 17th Century. Maker unknown.

Length, 1 foot 5½ inches. Width, 9½ inches. Depth, 4 inches.

These small spinets were tuned an octave above the ordinary pitch, and sometimes were included in a larger instrument. See No. 1196, page 85.

1223. SPINET. Compass, 4 octaves and a fifth—G to D; lowest octave short. Wing-shaped case of polished walnut on a 3-legged stand. Sound-board with cut rose. Keys, ebony naturals, with white sharps. Leather plectra. England. 1684. Maker, Charles Haward.

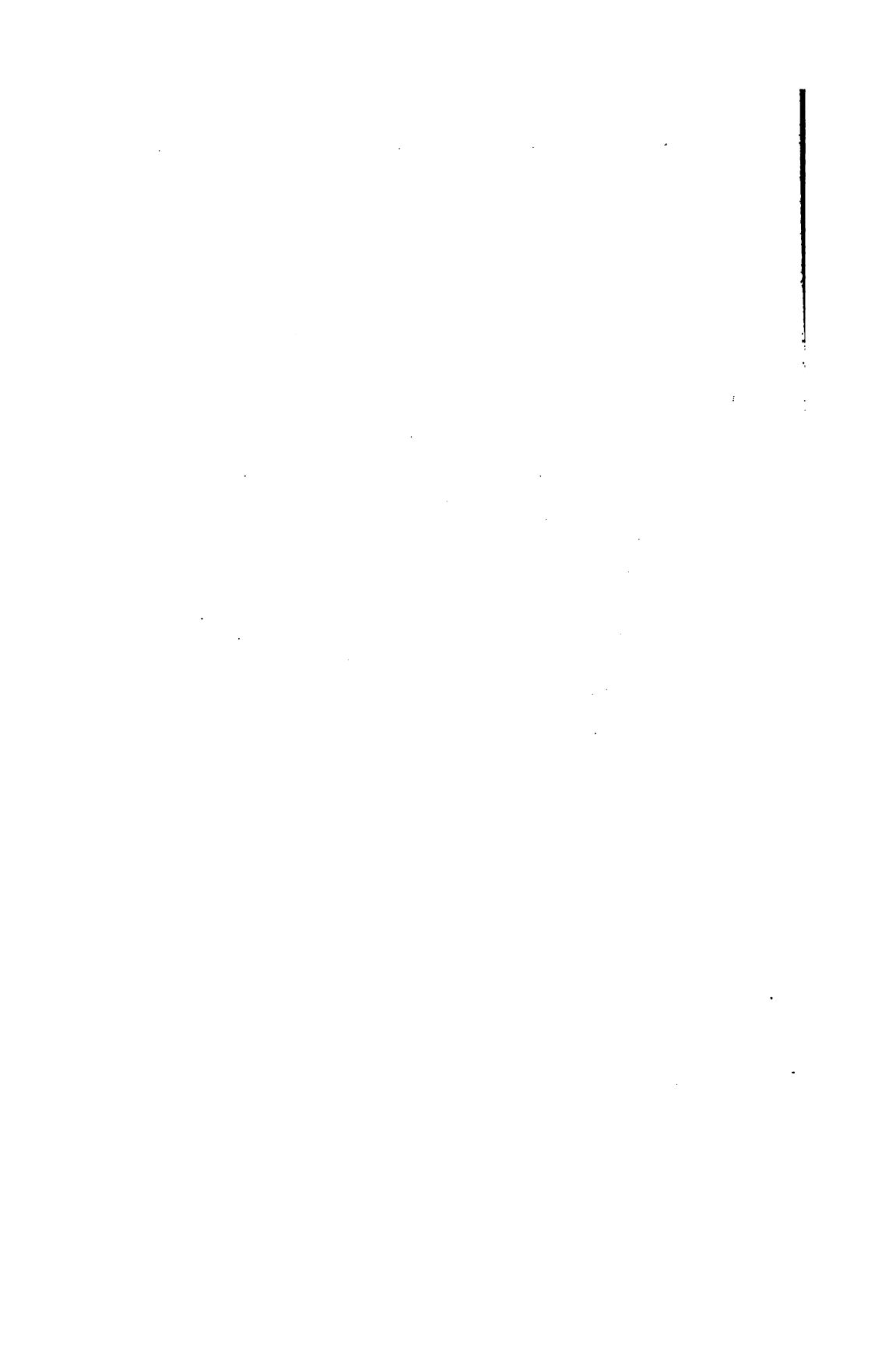
Length, 4 feet 6 inches. Depth, 7½ inches.
Drexel Collection.

1212. SPINET. Compass, 5 octaves—G to G. Wing-shaped case of walnut on a 4-legged stand. Sound-board without a rose. Keys, ebony naturals, with ivory fronts; sharps ivory, with ebony inlaid line. Quill plectra. The number of the instrument is 1518. England. c. 1700. Maker, Thomas Hitchcock.

Length, 6 feet 1 inch. Depth, 8 inches.
Drexel Collection.

¹ See "Musical Instruments, Historic, Rare and Unique," by A. J. Hipkins, Black, Edinburgh, 1888. Page xviii.

² See introductory article on Keyboard Instruments, by Mr. A. J. Hipkins, page xxix.





No. 1224.
Clavicytherium or Clavicembalo Verticale.
Upright Harpsichord.
Page 87.

- ~~1226. SPINET. Compass, 5 octaves—F to F; lowest F sharp omitted. Wing shaped case of mahogany, inlaid with white wood, after the style of Sheraton, on a 4-legged stand. No rose. Keys, ivory naturals, with black sharps. Leather plectra. England. 1771. Maker, Baker Harris.~~
~~Length, 6 feet 3½ inches.~~

1225. CLAVICYTHERIUM or CLAVICEMBALO VERTICALE. Upright harpsichord. Compass, 4 octaves and a fourth—C to F; lowest octave short. A vertical, trapeze-shaped body, supported on a square stand, the sound-board decorated with 3 roses. Keys, boxwood naturals, with black sharps, two strings to each note. Leather plectra. Italy. c. 1600. Maker unknown.

Height, 4 feet 11 inches; width, 2 feet 10 inches.

Similar instruments are described by Prætorius and Mersenne.

1224. CLAVICYTHERIUM or CLAVICEMBALO VERTICALE. Upright harpsichord. Compass, 4 octaves—C to C; lowest octave short. An oblong case, supported on a four-legged stand, the folding doors and keyboard painted with sacred and musical subjects, the cover bearing a coat of arms. The sound-board, decorated with a single rose, assumes the usual trapeze shape, the remaining space being decorated with a painting of David playing on the harp. Keys, ebony naturals, with black sharps, inlaid with an ivory line. Leather plectra. Two unison strings plucked by two rows of jacks, the sliders immovable. The corners of the cover have crumbled away from age. Italy. Early 17th Century. Maker unknown.

Height, 7 feet 5 inches. Width, 2 feet 4 inches.

A similar instrument exists in the Snoeck Collection at Ghent, under the title "*Clavicin Buffet*."

2401. MODEL of CLAVICYTHERIUM ACTION. Quilled jack on key showing mechanism for upright form of harpsichord.

1222. HARPSICHORD. Compass, 4 octaves—C to C; lowest octave short. Long trapeze-shaped instrument of cedar wood, enclosed in an outer case decorated with large scroll-work device, the interior of the cover painted with sacred subjects. The sound-board has a cut rose. Keys, light wood naturals, with black sharps (renewed). There are two rows of jacks, acting upon two unison strings, the ends of the sliders passing through the right-hand side of the instrument. Keyboard front decorated with musical subjects. Italy. c. 1600. Maker unknown.

Length, 5 feet 7½ inches. Width, 2 feet 7 inches. Depth, 10 inches.

1928. MODEL OF HARPSICHORD ACTION. Key with quilled jack.

1221. HARPSICHORD. Compass, 4 octaves and a fourth—C to F; the lowest octave formerly short. A long, trapeze-shaped instrument of cedar-wood, decorated with mouldings of the same, resting on a three-legged stand. The exterior painted with Cupids and wreaths of flowers; on each side of the cover is a pastoral scene and a distant landscape. The sound-board has a sunken rose. Keys, ivory naturals, with black sharps (renewed). 2 rows of jacks, acting on 2 strings in unison; they were worked formerly by small buttons within the case. Quill plectra. Inscribed, "Hieronymus de Zentis Viterbiensis. F. Romæ. Anno Dom. MDCLVIII." Italy, 1658. Maker, Jerome de Zentis. This instrument has been much restored.

Length, 6 feet 6 inches. Width, 2 feet 8 inches. Depth, 10½ inches.

Purchased by the Metropolitan Museum of Art.

1231. HARPSICHORD. 4 octaves and a fourth—A to E.

A long, trapeze-shaped instrument on a three-legged stand. Keyboard front inlaid with ebony and ivory, and with small ivory plaques engraved with scenes from the Passion of our Lord. The jack-rail similarly inlaid. At the end of the keyboard are gilt mythological figures on dragons. The inside of the cover painted with musical scenes and sleeping Venus. The sound-board bears three sunken roses. Keys, ebony naturals with ivory fronts, black sharps with ivory inlay. Two rows of jacks, acting on two unison strings, and moved within the case by small buttons at the ends of the sliders. Also a row of buff dampers. Quill plectra. Italy. 17th Century. Maker unknown.

Length, 6 feet 6 inches. Width, 2 feet 10¼ inches.

1678. HARPSICHORD. Compass, 5 octaves—F to F; lowest F sharp omitted.

A long, trapeze-shaped instrument in polished walnut, with inlay of white wood and large brass mountings. Keys, ivory naturals, with black sharps. Three rows of jacks, acting on two unison and one octave set of strings, also a row of buff dampers. The sliders moved by long levers. The stop-knobs project immediately above the keyboard, two on either side. The vibrating length of the longest unison wire is 5 feet 4 inches, and of the shortest 5 inches. The vibrating length of the octave wires is half of the above lengths. Quill plectra. On the left-hand side a lever, worked by a foot pedal, moves two sliders.

This action, which was in general use in the late 18th Century English harpsichords, is called the "Machine." England. 1781. Makers, Jacobus & Abraham Kirkman.

Length, 7 feet 3 inches. Width, 3 feet. Depth, 1 foot.

1218. HARPSICHORD. Double-banked. Compass of each of the 2 keyboards 4 octaves and a sixth—G to E. A long, trapeze-shaped case, resting on 7 bowed legs, decorated with gesso work. The outside of the case decorated with characteristic Verni Martin paintings of musical subjects and flowers on a gilt ground. The interior of the cover painted with floral decorations on a similar ground. The lid is supported by a gilt rod, representing a sheaf of arrows. The sound-board, which has a small rose with the name of the maker, is decorated with paintings of flowers and birds. Keys, ebony naturals, with ivory sharps. 3 rows of jacks, acting on 2 unison and 1 octave set of strings. The upper keyboard acts on one string only, the lower keyboard on all 3, if required. The sliders moved by short levers inside the case. Quill plectra. France. 18th Century. Maker, Louis Bellot.

Length, 8 feet 2 inches. Width, 3 feet 2 inches.

GALLERY 26. CENTRAL CASE.

2430. CLAVIHARP. Compass, 7 octaves—A to A. Harp-shaped case in bird's-eye maple, with gilt carving, standing on 2 cross-legs, with gilt scroll-work. The sound-board with gilt decoration and a painting representing a female figure surrounded by Cupids. Keys, ivory naturals, with black sharps. Strings of wire; 2 lower octaves over-spun. 2 pedals, one lifting the dampers from the strings in the 2 lower octaves, the other opening a swell shutter similar to that in the harp. Italy. Late 19th Century. Maker unknown.

Height, 5 feet 8 inches. Width, 4 feet 4 inches. Depth, 1 foot 6 inches.

The Clavicharp was invented by Christian Dietz, of Paris, in 1815. By an ingenious mechanism the string is plucked when the key is depressed, giving a harp-like effect to the instrument. The striking is done by finger-like hooks, which pluck the strings in passing, and which are immediately brought back into their original position by little leaden weights. The instrument has also a self-acting muffling apparatus, which can be shut off by a pedal register, and two other pedal registers, one controlling a list or strip of cloth, the other pressing upon the deepest chords of a paper roll, thus together producing a rattling sound (bassoon register). The present specimen has received modern improvement, the plectra of two lower octaves having been replaced by hammers similar to those on the piano.

SECTION B. STRUCK STRINGS.

For examples illustrating development of this class, see page 83.

GALLERY 28. CENTRAL CASE.

2543. CLAVICHORD. Compass, 36 notes. Oblong case, covered with stamped leather, with conventional designs in brown on a gold ground; gilt mouldings around the edges. The inner cover bears a coat of arms on stamped leather. The keyboard projects. Keys, ebony naturals, with ivory sharps. Italy. 1537. Maker, Alex. Trasontinus.

Length, 2 feet 5 inches. Width, 1 foot $1\frac{3}{4}$ inches. Depth, $5\frac{1}{4}$ inches.

At present, one string to each tangent, small movable bridges being placed under the strings somewhat after the manner of the early Italian clavichords. On examination of the instrument it seems to have been much altered from its original construction. The keys, which apparently have been renewed, are arranged in a peculiar way, extra sharps being inserted between B natural and C in the lowest octave, and between E and F in the upper octave, with no provision for an F sharp between F and G immediately above. The following inscription and motto on ivory are found within the edge of the case: "Alex. Trasontini ut osa flos florum ita hoe clavle clavilium hoc opus, 1537." The motto should read as follows: "Ut rosa flos florum ita hoc clavle clavilium."

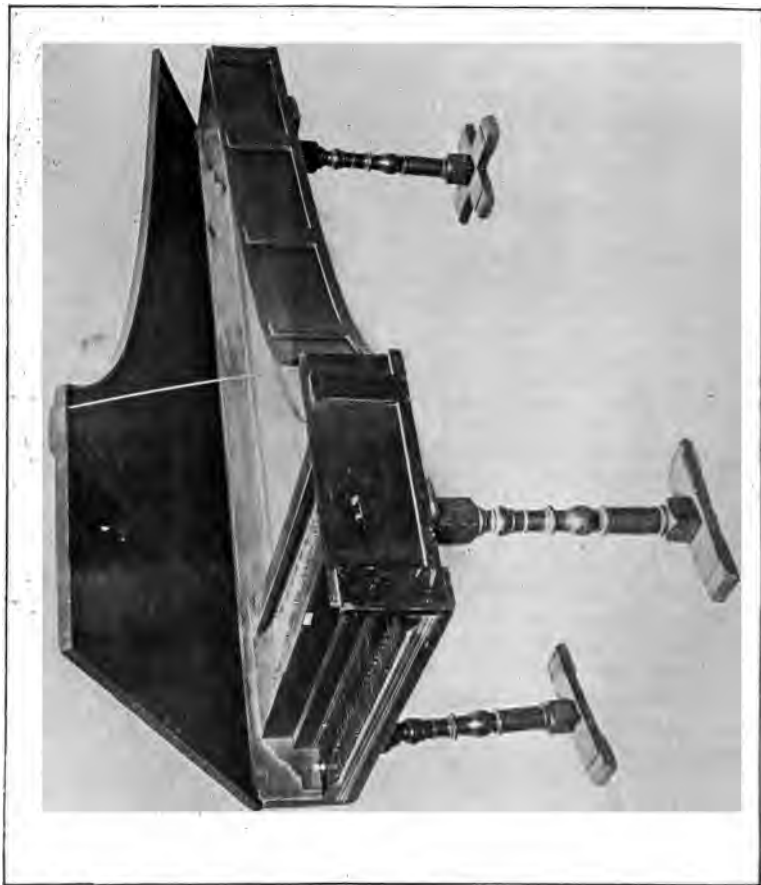
See also reference to this instrument in Mr. Hipkins' introductory article on Keyboard Instruments, page xxvii.

1215. CLAVICHORD. Compass, 4 octaves; the lowest octave short. Oblong wooden case, covered with colored paper. Keyboard recessed. Keys, light wood naturals, with black sharps (renewed). This instrument is *gebunden*¹, or *fretted*; that is, 2 tangents and sometimes 3 tangents strike on the same string. 2 strings to each note. The lowest 6 notes, *bundfrei* or *unfretted*; that is, with a number of strings to each tangent. Germany. 17th Century. Maker unknown.

Length, 3 feet 2 inches. Width, $11\frac{1}{2}$ inches. Depth, 3 inches.

1207. CLAVICHORD. Compass, 5 octaves—F to F. Oblong case on a carved wooden stand, with 4 bowed legs. The outer case painted in imitation of tortoise-shell; the inside of the cover black, with painted panels. Keyboard recessed. Keys, ebony naturals, with ivory sharps. This instrument is *bundfrei*.

¹ See Preface to Stringed Instruments, page 15.



No. 1219
Cristofori Piano. Side View.
Page 91.

Germany. 1765. Maker, John Christopher Jesse, Organist at St. Martin's Church, Halberstadt.

Length, 5 feet. Width, 2 feet. Depth, $7\frac{1}{2}$ inches.

For an instrument of this kind Bach wrote his celebrated Preludes and Fugues, demonstrating the practicability and value of equal temperament in tuning.

1926. MODEL OF CLAVICHORD ACTION. Key, balanced on a key rail, carries a metal tangent.

1219. PIANO. Compass, 4 octaves and a fourth—C to F. Trapeze-shaped case of cedar, standing on 3 legs. Outside of case painted black. Keys, light wood naturals, with black sharps. 2 ivory knobs on the side blocks, enabling the action to be withdrawn from the instrument. Two strings to each note. The vibrating length of the longest string is 6 feet 2 inches; the shortest $4\frac{1}{2}$ inches. Sound-board without a rose. Italy. 1720. Maker, Bartholomæus de Christophoris. Above the front-board on the block which carries the action, are the following inscriptions: "Bartholomæus de Christophoris Patavinus Inventor Facierat Florentiæ, MDCCXX," impressed in Roman characters, and on one side, in running hand, "Restaurato l'Anno, 1875, da Cesare Ponsicchi Firenze."

Length, 7 feet $7\frac{1}{2}$ inches. Width, 3 feet 3 inches. Depth, $9\frac{1}{2}$ inches.

This specimen possesses an unusual interest, as being the earlier of the two existing pianos known to have been made by Cristofori, the inventor of the pianoforte. The other, dated 1726, is in the possession of Mons. Alexandre Kraus, of Florence, Italy.

Bartolommeo di Francesco Cristofori was born in Padua in 1653, and died in 1731. The house where he lived is not known. His workshop was in the Officina (offices) of the Count of Tuscany, where he was under the auspices of the Prince of Tuscany. A monument erected after the Cristofori Festa is in the Cloister of Santa Croce, on the right of the entrance coming from the piazza, and at the end of the Loggia. No portrait of Cristofori is known to exist.

From Mr. Hipkins' introductory article on Keyboard Instruments (page xxxi) we quote the following: "Cristofori's invention was published in 1711, and this pianoforte, dated 1720, represents it in its perfected form. The action has the 'escapement,' without which there can be no vibrating note; the 'check,' an all-important step toward repeating notes; the shake, etc. Cristofori's action was exactly copied by Silbermann, as well as the structure of the instrument, in the three pianos he supplied to Frederick the Great, which are still preserved at Potsdam. The biographical notice of Cristofori in Grove's 'Dictionary of Music and Musicians,' gives all the known antecedent particulars of this historical Piano e Forte and its inventor and maker."

The following documents have interest as bearing on the authenticity of the specimen. The first is a statement by Signor Diego Martelli, the last

owner, from whom the instrument was purchased; the second is a permit granted his mother by the National Museum of Florence to visit her piano during the time when it was temporarily on exhibition; the third is an affidavit of Giorgio Ceccherini, an expert in musical instruments, by whom the piano was examined prior to its transfer.

I.

Statement of Signor Diego Martelli concerning the Cristofori Piano :

" Florence, Italy, Nov. 23d, 1895.

" This piano was bought by my maternal grandfather, Dr. Fabio Mocenni, years ago, when my mother was about five years old. My mother was born in 1814, and her father must have acquired the piano between 1819 and 1820. It remained always in my grandfather's house until his daughter married my father (the Engineer, Charles Martelli). Then she brought that piano into my family and always preserved it, not because of its great value, as she knew nothing of it until very lately, but in memory of her dead father, and because on that piano, when still a child, she learned the first rudiments of music. My mother, by family tradition, knew that this piano had been purchased by her father at a public sale which took place in the Grand Ducal Palace, in Siena, by order of the Minister of the Household, of all such things as he considered as worthless and of no use. The discovery that this piano was very valuable was as follows :

" For the sake of economy during the time that Florence was the Capital of Italy, we rented the first floor of our house, No. 3 Via del Melarancio, and occupied the second floor. In 1872, Signora Martelli (my mother) again changed her apartments from the second to the first floor, and at the moment the transfer of our furniture was taking place from one floor to the other, Prof. Cosimo Conti, a scholar and an intimate friend of ours, came to visit us. The professor was in close correspondence with Cavaliere L. Puliti, who was spending a great deal of his time in trying to discover the origin of the piano, and discovered on it, to his great surprise, an inscription which attested that it had been made by Bartolomeo de Cristoforis. He immediately informed his friend, Cavaliere L. Puliti, of this fact, and he came at once to examine it. Then it was ascertained that it was one of the rarest and most valuable pianos in existence. We at once sent for a tuner and had it put in good condition, and the most distinguished pianists of Italy have since played on it.

" Cavaliere L. Puliti published a book on the life of Ferdinando de Medici, Grand Duke of Tuscany, and in it he treated of the origin of the piano. In this learned book, at page 31, he mentions the piano in possession of my mother (Signora Martelli), which is now your property.

" In 1876, Signor Cesare Ponsicchi published a work entitled 'The Piano, Its Origin and Evolution.' In his monograph, Signor Ponsicchi, at pages 26 and 27, speaks at length of this piano and illustrates it at the end of the volume.

" I believe that the above information will satisfy your legitimate curiosity, and by indicating to you the above published works to which you may refer for more detailed information, I have complied with your wishes in the matter.

" I remain, very truly,

(Signed)

" DIEGO MARTELLI,

" Only son and heir of Ernesta Mocenni, Widow Martelli."

The two books referred to in the above account : " The Life of Ferdinando de Medici, Grand Duke of Tuscany," by Cavaliere L. Puliti, and " The Piano,



No. 1219.

Cristofori Piano.

Front view, showing action.

Page 92.

Its Origin and Evolution," by Cesare Ponsicchi, are now out of print, and it is impossible to obtain them. Through the courtesy of Signor Martelli, the Museum was enabled to purchase his own copies, and these, together with the cofra in which he kept them, are now in the library.

II.

Translation of permit to visit the National Museum of Florence at any time, granted to Signora Martelli, who loaned her Cristofori Pianoforte to the Museum :

" National Museum of Florence,

Florence, Sept. 9th, 1883.

" The noble lady Ernesta Martelli, being the owner of the old Pianoforte De Cristoforis, loaned by her to the National Museum of Florence, is granted permission to enter the museum at any time she may wish to see the condition of her Pianoforte.

(Signed)

" The Director,

" C. DONATI."

III.

Copy of affidavit of Giorgio Ceccherini regarding his examination, etc., of the Cristofori Pianoforte :

" Kingdom of Italy, } s. s.
 City of Florence, }

" I, Giorgio Ceccherini, of the firm of G. & C. Ceccherini, dealers in pianos and musical instruments, successors to Messrs. Dussi, established in the year eighteen hundred and thirty-four, in the City of Florence, Kingdom of Italy, examined, in the months of May and June, eighteen hundred and ninety-five, at various times, an ancient piano, the original production of the late 'Cristofori,' the best manufacturer of pianos in the early part of the eighteenth century, said Cristofori having been the inventor of pianos.

" I do solemnly, sincerely and truly declare that I am an expert in the line of musical instruments, and that the aforementioned piano commands a price of a rare piece of antiquity, and as such was sold to Mrs. John Crosby Brown, of New York, United States of America. I do finally, solemnly, sincerely and truly declare to the best of my knowledge and recollection, that the piano aforesaid was bought for presentation to a Museum in New York.

" Florence, January 17th, A. D. 1896.

(Signed)

" GIORGIO CECCHERINI. [L.s.]"

" [L.s.] Subscribed and sworn to this 17th day of January, 1896, before me,

(Signed)

" C. BELMONT DAVIS,

" United States Consul at Florence, Italy."

1197. PIANO. Compass, 5 octaves—F to F. Oblong case, supported upon a stand, with 2 legs resting on cross-bars. The outside of the case decorated with appliqué open-work in black oak. Keys, ebony naturals, with ivory sharps. Primitive German action, without escapement. Originally furnished with one forte pedal, lifting the dampers. Nuremberg, Germany. 18th Century. Maker unknown.

Length, 5 feet 4 inches. Width, 1 foot 10¾ inches. Depth, 8 inches.

1927. MODEL OF ACTION, Nuremberg Piano (No. 1197).

Primitive Viennese method, without escapement.

1951. PIANINO. 5 octaves—F to F. Narrow oblong mahogany case, with cut corners, resting on 4 square legs. Keys, ivory naturals, with black sharps. No pedals or stop levers. Europe. Late 18th Century. Maker unknown.

Length, 3 feet 6 inches. Width, 1 foot 2½ inches. Depth, 6 inches.

1855. PIANO. Compass, 5 octaves—F to F. Oblong case of mahogany, decorated with lines of black and white inlay, arranged in panels standing on 4 turned legs. One forte stop, worked by a lever on the left-hand side of the case, raising the dampers. The action is similar to that used by Zumpe in the pianos first made in England in the latter part of the 18th Century. England. Late 18th Century. Maker, Thomas Western, near Westminster Bridge, London.

Length, 5 feet 2 inches. Width, 1 foot 9 inches. Depth, 9 inches.

1199. PIANO. 5 octaves—F to F. Oblong case of mahogany, inlaid with white wood and ornamental lines, resting on a stand with 4 legs, brass mounted. Keys, ivory naturals, with black sharps. A forte lever on the left-hand side of the case raises the dampers. Bi-cord. U. S. A. Late 18th Century. Maker, Chas. Albrecht, Philadelphia.

Length, 5 feet 2¾ inches. Width, 2 feet 9 inches. Depth, 9 inches.

2403. PIANO. Compass, 5 octaves—F to F. Oblong case of light mahogany, ornamented with inlaid lines, supported upon a 4-legged stand similarly inlaid, with brass mounts. Keys, ivory naturals, with black sharps. 2 levers on the left-hand side of the case act, respectively, to raise the dampers and mute the strings with soft felt. Bi-cord throughout. England. Late 18th Century. Maker, George Astor, 49 Cornhill, London.

Length, 5 feet 2 inches. Width, 1 foot 10 inches. Depth, 9 inches.

1214. PIANO. 5 octaves—F to F. Oblong case of light wood, resting on 4 legs. Keys, black naturals, with white sharps. Beneath the front of the instruments 2 genouillères (knee levers), the invention of John Andreas Stein, act respectively as forte and soft pedals, the latter muting the strings with cloth. Austria. Late 18th Century. Maker, Anton Vatter, Vienna.

Length, 5 feet 3 inches. Width, 2 feet 2 inches. Depth, 8 inches.

1923. MODEL OF ACTION. Piano by Vatter (No. 1214). Viennese method; hammer in pin and on key. Perfect escapement.

1924. MODEL OF REPETITION ACTION, Steinway Grand Piano, showing balance lever.

1208. PIANO. Compass, 6 octaves—F to F. Oblong mahogany case, in Sheraton style, with inlaid lines and brass mountings, on 6 turned legs. Keys, ivory naturals, with black sharps. One forte pedal raising the damper. John Geibs hopper action, invented in 1786. England. c. 1800. Makers, Clementi & Co., London.

Length, 5 feet $7\frac{1}{2}$ inches. Width, 2 feet. Depth, 9 inches.

1206. PIANO. Compass, 5 octaves and 2 notes—F to G. Oblong mahogany case, inlaid with white wood and finely painted with fruit and flowers, supported on a 4-legged stand, also inlaid and painted. Keys, ivory naturals, with black sharps. This instrument formerly had the usual forte pedal of the period. England. Early 19th Century. Maker unknown.

Length, 5 feet 2 inches. Width, 1 foot 10 inches. Depth, $7\frac{1}{2}$ inches.

1213. PIANO. Compass, 6 octaves—F to F₁. Oblong mahogany case with rounded corners, resting on two supports with spread feet, brass mounted. The case decorated with inlaid lines. Keys, ivory naturals, with black sharps. 2 pedals working in an ornamental lyre below the instrument, respectively raise the dampers or mute the strings with soft leather. Wrist-pins in front of instrument. Bi-cord, the last 8 notes single. Austria. Early 19th Century. Maker, André Stein d'Augsbourg à Vienne.

Length, 5 feet 6 inches. Width, 2 feet $7\frac{1}{2}$ inches. Depth, 1 foot 2 inches.

This is apparently the work of Matthäus Andreas Stein, who removed from Augsburg to Vienna on the death of his father, Johannes Andreas Stein, in 1792. The Stein pianos were used by Mozart and Beethoven.

1198. PIANO. Compass, 6 octaves—F to F. Oblong case of dark mahogany, with rounded corners, supported by a stand of 2 legs, resting on cross-bars. The case profuse in gilt decoration of conventional designs of fruit and flowers. The stand elaborately carved, with claw feet, having in the centre a lyre supporting the pedals. Keys, ivory naturals, with black sharps. 2 pedals; one forte, raising the dampers, the other muting the strings with leather. Hitch-pins attached to an iron frame. Bi-cord, the 5

lower strings single. U. S. A. c. 1825. Maker, John Tallman, New York.

Length, 5 feet 9 inches. Width, 2 feet 2 inches. Depth, 1 foot 3 inches.

1203. PIANO. Compass, 6 octaves—F to F. Upright model, the upper part harp-shape, the lower part in the form of a cabinet, with panels of plaited silk; the keyboard supported by two female figures, caryatids, in wood. The case mahogany, with gilt-brass mounts and glass front. Keys, ivory naturals, with black sharps. 3 pedals, 2 raising the dampers in the treble and bass, respectively, the third shifting the action for soft playing. Tri-cord, the lowest 22 strings bi-cord. Austria. c. 1800. Maker, Seuffert, Vienna.

Length, 3 feet 10 inches. Width, 1 foot 9 inches. Height, 7 feet 8 inches.

1187. PIANO HARP. Compass, 7 octaves—C to C. This instrument, which is built in the form of a large harp with keyboard attached, rests on a solid base in cabinet form. The curve of the harp, the front pillar and keyboard front decorated with gilt moulding and ornaments in gesso work. Keys, naturals ivory, with rounded fronts; sharps black. Strings of metal; bi-cord; last 7 strings single. The loud and soft pedals are placed in the centre below the keyboard. Europe. c. 1800. Maker unknown.

Length, 4 feet 9 inches. Width, 2 feet 1 inch. Height, 7 feet 7 inches.

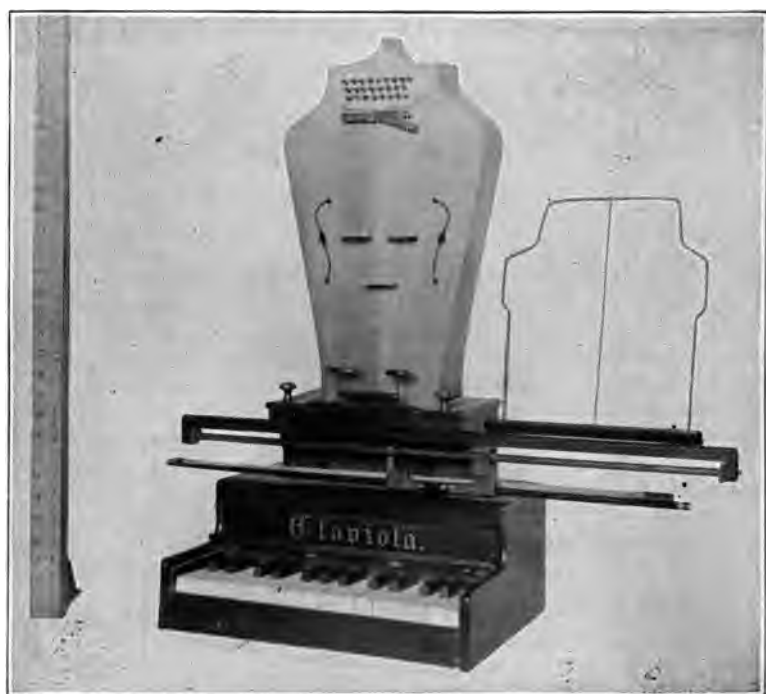
Mussard, of Lausanne, made pianos of this shape in the early part of the last century.

1228. BOX PIANO. Compass, 2 octaves and a fifth—F to C. Small square case, covered with ebonized veneer. On the outside of the cover is a medallion painted on the natural wood, representing a large tree, beneath which two maidens are offering gifts at the altar of Diana. In the interior of the cover a medallion in gilt inlay, representing a Roman head. The keyboard draws out for the purpose of playing. Keys, white naturals, with black sharps. Bi-cord. France. c. 1800. Maker unknown.

Length, 1 foot 6 inches. Width, 1 foot 5 inches. Depth, $7\frac{1}{4}$ inches.

This instrument formerly belonged to the Duchess of Parma.

1204. WORK-BOX PIANO. Compass, 4 octaves—F to F. A short, oblong case of dark walnut, inlaid with white wood, standing on a carved leg, with broad base. The cover bearing the figure of an eagle within a wreath. On lifting the cover a work-



No. 24c4

Claviola.

l'age 97.

box is disclosed, with looking-glass. Beneath the tray is the instrument, with recessed keyboard. Printed on the block are these words: "Imported and sold by S. Hart & Sons, portable desk and dressing-case warerooms, Philadelphia." One string to each note, the 12 top notes bi-cord. Europe. Early 19th Century. Maker unknown.

Length, 2 feet 5 inches. Width, 1 foot 6 inches. Depth, 6½ inches.

1246. ORPHICA. Compass, 4 octaves—F to F. This instrument is in the form of a recumbent harp, with metal strings, and keys enclosed in a walnut case. Keys, ivory naturals, with black sharps. One string to each note. Austria. Invented by August Rolig in 1795.

Length, 4 feet 5½ inches. Width, 1 foot 1½ inches.

SECTION C. BOWED STRINGS.

GALLERY 28. CENTRAL CASE.

2404. CLAVIOLA. Compass, 2 octaves and 4 notes—G to B. Small chest of wood, from which rises a small viol-shaped sound-board, across which are stretched 25 wire strings, resting on 3 bridges. In front a guide, sliding along a brass rod, holds a violin bow. On pressing a key the string is raised and brought in contact with the bow. The 4 upper notes are produced from the strings in the octave below by means of a small pad on a lever, which touches the lower strings half-way, thereby producing the octave harmonic. Keys, white naturals, black sharps. Europe. Late 19th Century. Maker unknown.

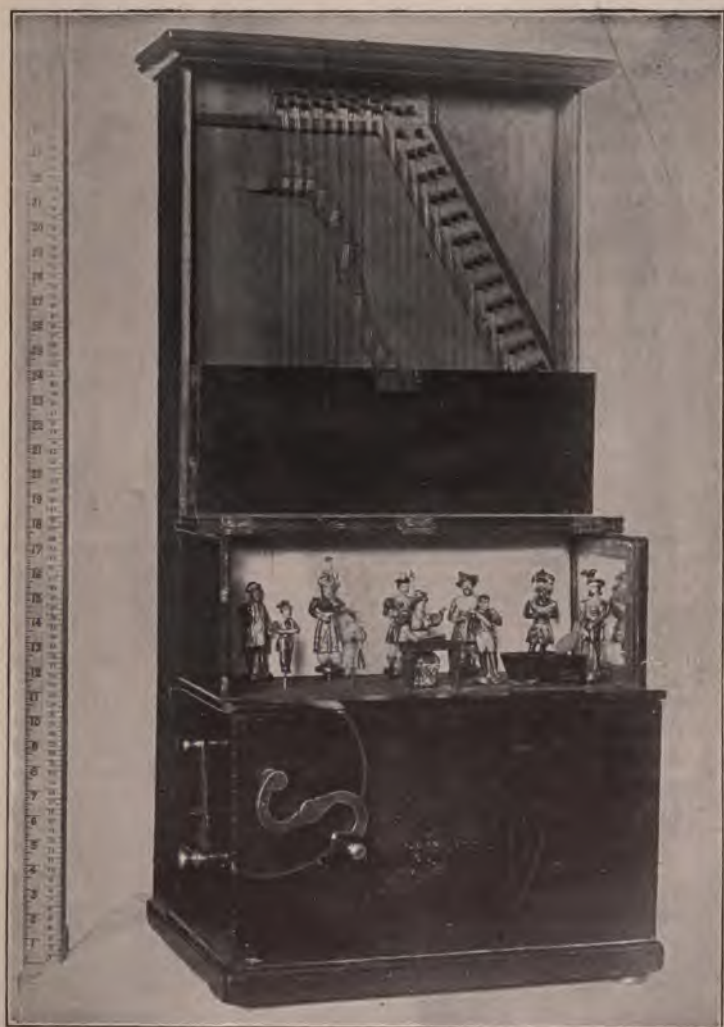
Height, 2 feet 5½ inches. Width, 1 foot 3¾ inches. Length of bow, 2 feet 3½ inches.

CLASS I. STRINGED INSTRUMENTS.

DIVISION III. WITH AUTOMATIC MECHANISM.**GALLERY 28. CENTRAL CASE.**

2048. BARREL PIANO. An upright oblong case of walnut, containing a cylinder turned by a handle, which projects through the case, setting in motion small hammers, which strike the strings; at the same time 10 small dancing figures are moved. Europe. Early 19th Century.

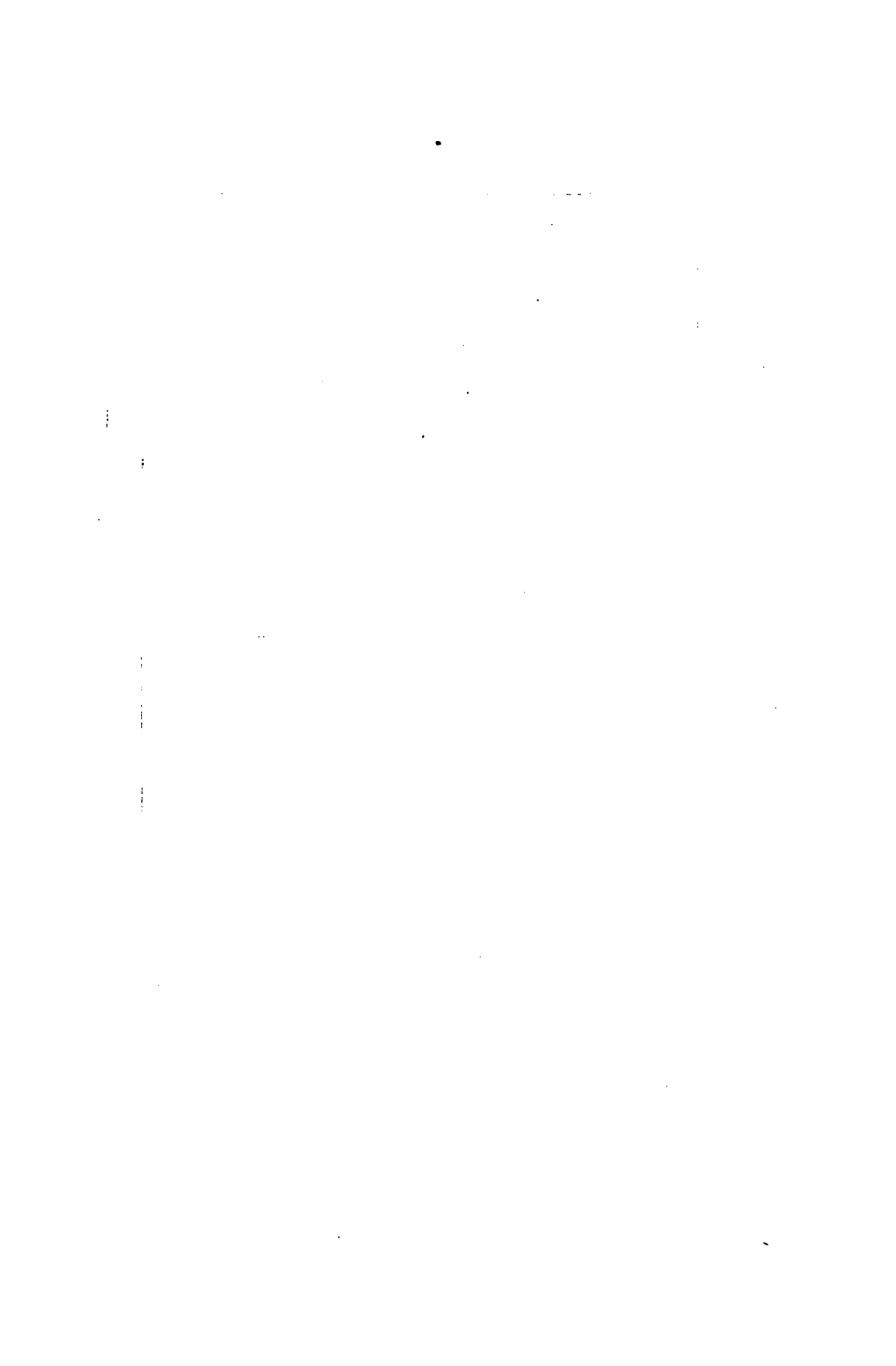
Height, 3 feet 1 inch. Width, 1 foot 5 inches. Depth, 1 foot 2 inches.



No. 2048.

Barrel Piano.

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CLASS II. WIND INSTRUMENTS.

PREFACE

TO

CLASS II. WIND INSTRUMENTS.

DIVISION I. WITHOUT A KEYBOARD.

In this class, as in that of the stringed instruments, there is a natural division into three sections, distinguished by the principles severally employed for exciting the vibrations necessary to the production of sound. The vibrations, in the case of a wind instrument, are generally regulated by a column of air contained within a tube, the air-column corresponding to the stretched cord of the strings, and showing many close affinities with it. The three main principles of sound production in wind instruments are: (A) the Whistle, as used in the Flute and Flageolet; (B) the Reed, as used in the Clarinet, Oboe and Harmonium; (C) the Cup Mouthpiece, employed in the Trumpet and Horn.

SECTION A. WHISTLES.—This principle claims to be the earliest of the class. Jubal's Organ, or the Pan-Pipe, the long Flutes of ancient Egypt, the bone whistles of the Cave-dwellers, all point to the fact that very early in the history of the human race the splitting of a current of air on the thin edge of an hard substance had been found to produce musical sound. The principle thus discovered has been developed in two ways, which are generally recognized by the vertical or the transverse position in which the instrument is held.

(1) *The Vertical Flute.* Here the performer at first di-

rected his breath against the sharp edge at the end of a simple tube of bone or river-reed, a method of sound production which is still seen in Europe in the Pan-Pipe, the vertical Flutes of Greece and Bulgaria, and has recently been revived as a novelty, in the Giorgi Flute.

The production of sound in this way, however, being difficult, a mechanical device, in imitation of the player's lips, was adopted. The upper end of the tube was plugged, but a narrow slit made in the plug directed the wind upon the thin edge of an opening in the side of the instrument. This is known as the Whistle, and, as fitted to the end of a tube furnished with finger-holes, has produced the Recorder, Flûte à bec and Flageolet.

(2) *The Transverse Flute.* In this case the earlier method partly survives. The performer compresses the current of air between his lips and forces it, not on the upper edge of the tube, which is completely closed, but on the sharp edge of a hole in the side of the instrument. The form is represented in Europe by the so-called German Flute and the Fife, but the method of sound-production adopted in the Transverse Flute was, in all probability, introduced among Western nations by the Saracens, who had received it from the East, where, as in China and India, it has been in use from time immemorial.

SECTION B. REEDS.—So numerous and so varied are the wind instruments sounded by means of the reed that it will be convenient to group them under two heads—those sounded by the Beating Reed and those sounded by the Free Reed.

(1) *Beating Reeds.* The name is derived from the principle on which the sound is produced. A flat piece of reed or cane beats under wind pressure upon a level surface or "seat,"—in some cases of wood or metal, in others of a similar piece of reed. The pulsating movement of the reed when it is attached to the end of a tube causes the air column to vibrate, and according to the length of the column and the speed of the vibrations the required note is produced. The principle of the beating reed was known very early in the history of man, and the most ancient civilizations show it in its two forms, the

single beating reed, which originated in the little slip or tongue cut in the side of the river-reed, and now forms the mouth-piece of the Clarinet, and the *double beating reed*, which in its earliest stage simply consisted of the compressed end of a soft straw, and now produces the delicate tone of the Oboe and Bassoon. Each of these two forms, however, has gained additional expansion by being employed with two different shapes of tube—the cylindrical and the conical, the former shape moreover giving the pitch an octave lower than the corresponding length of conical tube.

(a) *The Single Beating Reed* with the cylindrical tube is found in the Zummarah and Arghoul, the descendants of the ancient Egyptian Mam or reed-pipe, and in the Chalumeau, Pibgorn and Clarinet. The single beating reed with a conical tube is represented by the Saxophone.

(b) *The Double Beating Reed*, used with a cylindrical tube, though now found only in some kinds of Bagpipe, was the principle generally adopted in the Greek Aulos and the Roman Tibia, while in later times it appeared in the Krumhorn and Cervelas. The double reed with a conical tube is now represented by the Oboe and Bassoon, the successors of the mediæval Shawm, Pommer and Bombardt, as they in their time were of the Zourna and Zamr of Northern Africa and Asia.

(c) *The Single and Double Reeds with Air Reservoir*. In the Bagpipes combined forms of beating reed are found, with the addition of an air reservoir. The chanter (or melody pipe) usually has a double reed fitted to a conical tube provided with finger holes; but in the Irish chanter the tube is cylindrical, and in the modern Greek pipe there is a single beating reed.

The drones (or accompaniment pipes) are generally furnished with a single beating reed on a cylindrical tube without side holes; but in the French Musette and the Italian Zampogna the reed is double, in the former on a small cylindrical bore, in the latter on a conical tube similar to that of the Oboe.

The use of a bag or reservoir for supplying air to the instrument, while the performer is taking breath, was known to the Greeks and Romans, perhaps also to the Assyrians, though no traces of it have as yet been found among the ancient Egyptians. The addition of bellows to the bag seems to have been made in Europe in the sixteenth century, and, although its use was optional, it was employed more frequently with certain kinds of Bagpipe, such as the French Musette and Cornemuse, the Irish, Lowland Scottish and Northumbrian Pipes, than with the more rustic forms of the instrument.

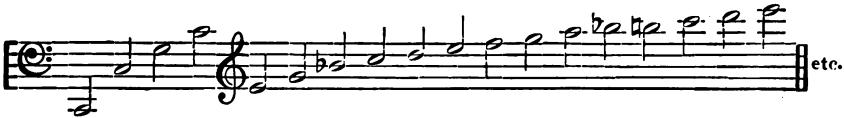
(2) *Free Reeds*. Introduced into Europe in the eighteenth century, and copied from the ancient Chinese Chêng. This principle is limited in its application to a popular and useful group of instruments of the concertina and harmonium type, though it has occasionally found a place in the Pipe Organ. In the free reed a metal tongue fixed at one end vibrates freely and without contact within a close-fitting frame of metal. This form of reed will produce musical sound without a tube attachment, and whereas the pitch of a beating reed pipe is altered by a variation of wind pressure, that of the free reed is but very slightly affected, although the power of the sound may be diminished or increased.

Under this group should also be included the "ribbon" reed, which consists of a thin membrane placed within a narrow frame, and possessing sufficient elasticity to vibrate although fixed at both ends. It is only used in children's toys, but a similar principle has been recently discovered in the reed horns of the Alaskan Indians.

SECTION C. CUP MOUTHPIECES.—The instruments in this section (commonly included under the erroneous title of "Brass Instruments") are sounded by the vibration of the lips within a mouthpiece shaped like a shallow cup or hollow cone placed at the end of a tube.

In some of these instruments the simple tube alone is used; in others various devices, such as the side hole, valve, etc., are employed for increasing the number of tones to be produced.

(1) *The Simple Tube.* On the natural form of the tube, as seen in the short ox-horns and oliphants, it is difficult to sound more than one fundamental note and perhaps its octave; but on a tube, say eight feet in length, the following series of harmonic notes may be produced by the compression of the lips:



On a tube four feet in length this series would, of course, sound an octave higher and the upper octave would be impossible. On the other hand, on a tube sixteen feet in length the series will sound an octave lower and the fundamental note will be unplayable. As can be seen, this natural scale is most imperfect, and the history of cup mouthpiece instruments is that of the various attempts which have been made to supply the missing diatonic and chromatic intervals. One of the earliest efforts in this direction was:

(2) *The Slide principle.* This was certainly known to the Romans, at the commencement of the Christian Era, and, descending through the Sackbuts of Mediæval times, survives to the present day in the Slide Trombone. By extending the slide and so lengthening the tube, new series of harmonic notes are obtained at lower pitches, which supply the missing notes in the original scale, except in the lowest octave. In England the principle was applied early in the last century to the Trumpet.

(3) *The Side-hole principle.* By piercing holes in the side of the tube, in a manner similar to that employed from the earliest times in the flutes and reed instruments, a way was found of filling up the missing notes in the two lowest octaves of the harmonic series. This principle was used on the 8-foot, 4-foot and shorter horns, and the instruments so constructed were called "Cornetti." From them were derived the Serpent, Bass Horn and Ophicleide, which last, by its disappearance about the mid-

dle of the 19th Century, has left these side-hole instruments unrepresented in the modern Orchestra. The keyed bugle, invented in Ireland by Halliday in 1810, was on the same principle, but employed the harmonics of the second and third octaves and therefore required fewer holes or keys.

(4) *The Hand-stopped principle.* In 1770, within a century after the introduction of the Hunting Horn into the orchestra, a new device was discovered by Hampel, of Dresden, for partially supplying the missing notes of this instrument. In order to complete the scale the hand is placed across and within the large bell, thereby flattening the natural note. Special effects, however, can be produced by thrusting the hand as far into the bell as possible; in this case the pitch of the natural note is raised as the vibrating length of the column of air within the tube is shortened. The principle of the Handhorn was applied to the Trumpet, but without success, owing to the loss of tone. Many horn players still use the hand-stopped notes, especially when playing the works of the great composers of the beginning of the last century.

(5) *The Valve principle.* By this invention a complete revolution took place in the construction and capabilities of the cup mouthpiece instruments. The valves, at first two, afterward and at present generally three or four, occasionally even six or seven, direct the wind into additional sections of tubing, thus in effect extending the length of the original tube, and by various combinations giving the notes necessary to complete the chromatic scale. The various forms of valves may be grouped under the following heads:

(a) *The Piston, Pump or Box Valve*, invented about 1815 by Blümel, a Silesian, improved by a German named Stölzel, and further perfected by Shaw, of England, and the family of Sax. In this system, which, with many improvements, is still in general use, the extra tubing is added by the depression of a long cylindrical piston, pierced with holes or windways, and working within an outer case. The term *Pump Valve* is given to a short form of piston, invented by Moritz, of Berlin, about

1830. In Austria *Double Piston Valves* on a system of transverse spring slides, as invented by Shaw in 1824, have been much employed. In the *Box Valve*, the action is similar to that of the piston valve, but the parts are rectangular instead of cylindrical. Box Valve cornets were produced by Hall, of Boston, about 1875, but some of the earliest valved instruments were made with "box" or rectangular parts.

(b) *The Rotary Valve*, on the ordinary four-way stop-cock principle, was invented by Blümel in 1827, and is chiefly used in Germany, Austria and Italy.

(c) *The Disc Valve*, invented in 1835 by Halary, of Paris, and improved by Shaw in 1838, causes the extra tubing, which is attached to a metal disc working upon another disc, to be added by a quarter turn to the original length of tubing. Owing to the difficulty of keeping the disc air-tight, this system has been abandoned.

In a Cup Mouthpiece instrument the material of which it is made is of but secondary importance, the tone being chiefly affected by a difference of *bore*, and the pitch by a difference of *length* in the tubing. For the Ophicleide type, the Bugles, Cornopeans, modern Cornets and Horns, a bore varying from slightly to broadly conical is used; in the Trumpets and Trombones, a cylindrical tube passing into a short conical bell gives the brilliancy of tone peculiar to these instruments. The available compass and individual *timbre* are also largely dependent upon the size and shape of the mouthpiece employed.

A key to the various principles and forms of Valves illustrated in the Collection will be found in the Index.

DIVISION II. WIND INSTRUMENTS WITH A KEYBOARD.

The application of the keyboard to Wind Instruments has produced, in the case of the Whistle and Beating Reeds, the Pipe Organ, and in connection with the Free Reed, the Harmonium and Reed Organ. It is now known that balanced keys were used by the Romans, and although their keyboard was not

divided in the same way and for the same purpose as for the modern diatonic and chromatic scales, yet the clay model of a Water Organ found at Carthage, and dating from the second century A. D., shows a keyboard of 19 large keys, or "pinnæ," corresponding in every respect to the description given by Vitruvius at the commencement of the present era, and similar to that written by Hero of Alexandria in the third century B. C. The Pipe Organ, therefore, as it is the grandest of all keyboard instruments, may also be considered to be the earliest. The Water or Hydraulic Organ differed from the Pneumatic Organ solely in the method employed for obtaining a continuous wind pressure. For this purpose air was pumped into a hollow metal cone without a bottom, inverted in a cistern of water; the air from the pump forced the water out of the cone, while the resistance of the water created a pressure sufficient for sustaining the sound of the pipes. In the primitive and mediæval Pneumatic Organs several pairs of bellows were required. These, raised one after the other, were closed automatically by the pressure of heavy weights; it was not until the end of the seventeenth century that a large wind reservoir was adopted, similar in principle to the bag of the bagpipe, and the number of working bellows reduced.

The earliest mechanism for admitting the wind to the pipes was a form of slide well greased and pierced with holes, corresponding with similar openings in the block of wood placed between the wind chest and the pipes. When by the action of the slide the holes and openings coincided the pipes sounded. A survival of this mechanism exists in the "sliders" to which the draw stops are attached, and by means of which a set or row of pipes is brought into use.

In the Organs of the twelfth century the valve action finds a place: here a hinged valve of wood, attached to the underside of a block of wood furnished with separate channels for each note, is pushed open by a metal pin, which passes through the block immediately below the key, and is closed again by a strong spring. In modern Organs the action is reversed, the valve or "pallet" being pulled down, in many instruments

by means of wooden levers and connections called "trackers," in others by small pneumatic bellows or electro magnets.

Beside the two forms of pipe—the Whistle or Flute Pipe and the Beating Reed—used in the Organ, there has been recently introduced the Retreating Reed, or Hope-Jones "Diaphone." In this pipe the sound is produced by the regular pulsations of a reed or cap of flat wood, which, in repose, rests upon a frame. By the admission of the air it is immediately thrown off its seat, but as quickly returns when the pressure is relieved, only to be thrown off again. The action is exactly the reverse of that of the beating reed, and corresponds to the movement of the lips in the cup-mouthpiece instruments. A very similar form of Retreating Reed is found among the Indians of the Northwest coast, and has been observed in a primitive slit reed from Northern Africa now in the Smithsonian Museum.

DIVISION III. WIND INSTRUMENTS WITH AUTOMATIC MECHANISM.

As to the Strings so also to the Pipe and Reed Organs automatic mechanism has been extensively applied; but the old Barrel action, in which a cylinder of wood studded with small metal points lifted the levers and valves of the Organ as it revolved, has given place to long rolls of paper or circular discs of metal, known as "stencil sheets." These sheets are perforated with holes which, as they pass over the open end of the channels, admit the wind either directly to the reeds or to small pneumatic bellows attached to the valves.

F. W. G.

EXPLANATION OF TERMS.

In the phrase "length of model," the word "model" has been used, not in any way as signifying a reproduction, but in the technical sense of the shape or form given to an instrument with curved or twisted tubes, by the maker, for the sake of portability or for the convenience of playing. "The length," or "total length of an instrument," is the *whole* length of the wind passage from mouthpiece to bell.

The pitch of an instrument is given approximately by the terms of *high soprano, soprano, alto, tenor, bass* and *contra-bass*. Generally the keynote of its natural scale is also given. In every instance C has been taken as the fundamental note. Thus: "Clarinet" or "Horn *in C*" means a clarinet or horn in which the note called "C" by the player sounds C; while on a "Clarinet" or "Horn *in B flat*," C sounds B flat, a whole tone flat, and on a "Clarinet" or "Horn *in A*," C sounds A, a whole tone and a semi-tone flat. On the other hand, on the "Clarinet" or "Trumpet *in D*," C sounds D, a whole tone sharp, and on the "Clarinet" or "Trumpet *in E flat*," C sounds E flat, a whole tone and a semi-tone sharp.

This principle has also been adhered to in the Flute section; C being taken as the fundamental note, although by a popular error D has been chosen for this purpose, that note having for a long time been the lowest note of the transverse flute. The Concert Flute *in D* is an instrument on which D sounds D, and therefore it is as correct and more systematic, to call it a Flute *in C* in which C sounds C, thus assimilating the nomenclature to that of the rest of the wind instruments.

F. W. G.

SOME KINDRED INSTRUMENTS OF OTHER COUNTRIES¹

ILLUSTRATING

CLASS II. WIND INSTRUMENTS.

SECTION A. WHISTLES.

VERTICAL TYPE.

The *Nay* (*Nei*) of Arabia and Egypt, No. 432, Case 28, Gallery 27.

The *Duduki* of Turkey, No. 447, Case 26, Gallery 27.

The *Chabbabeh* of Persia, No. 444, Case 24, Gallery 27.

The *Algoja* of India, No. 225, Case 17, Gallery 27.

The *Hsiao* of China, No. 56, Case 3, Gallery 27.

The *Shakuhachi* of Japan, No. 126, Case 11, Gallery 27.

The bone flutes and flageolets of the American Indians, Gallery 28.

With the clay whistles of China, Case 3, Gallery 27, compare the American Pottery Whistles of prehistoric times, Gallery 28.

TRANSVERSE TYPE.

The *Nose Flute* of Java, No. 798, Gallery 28.

The *Murali* of India, No. 183, Case 23, and the *Pawa*, No. 2503, Case 17, Gallery 27.

The *Ti-tzu* of China, No. 57, Case 3, Gallery 27.

The *Fouye* of Japan, No. 1502, Case 11, Gallery 27.

¹ As the instruments in Gallery 28 are subject to classification and rearrangement, the case numbers have been omitted.

SECTION B. REEDS.

BEATING REED TYPE.

(1) SINGLE BEATING REEDS.

With Cylindrical Tube.

The *Zummarah* of Egypt, No. 2167, Gallery 28.

The *Arghoul* of Syria, No. 430, Case 28, Gallery 27.

The *Tubri* of India, No. 286, Case 17, Gallery 27.

The Single Beating Reed is also found among the rude instruments of the North American Indians.

With Conical Tube.

The Reed Horns of South America.

(2) DOUBLE BEATING REEDS.

With Cylindrical Tube.

The *Hitschiriki* of Japan, No. 104, Case 11, Gallery 27.

The *Kuan-tzu*, No. 58, Case 3, Gallery 27.

The *E'raqyeh* of Egypt, No. 402, Gallery 28.

With Conical Tube.

The *Heang-teih* of China, No. 21, Case 1, Gallery 27.

The *Charumera* of Japan, No. 2001, Case 11, Gallery 27.

The *Toomerie* of India, No. 196, Case 18, Gallery 27.

The *Zourna* of Persia, No. 2450, Case 24, Gallery 27.

The *Zamr* of Arabia, No. 377, Case 28, Gallery 27.

The *Zamr* of Turkey, No. 344, Case 26, Gallery 27.

The Double Beating Reed is also found among the American Indians of the Northwest Coast.

(3) SINGLE AND DOUBLE BEATING REEDS WITH AIR

RESERVOIR.

The *Zitty* of India, No. 264, Case 17a, and the *Tubri* with gourd reservoir, No. 286, Case 17, Gallery 27.

The *Moushag* of Burmah, No. 263, Case 16, Gallery 27.

- The *Ghaida* of Turkey, No. 362, Case 25a, Gallery 27.
 The *Zouggarah* of Egypt and Northern Africa, No. 2717, Gallery 28.

FREE REED TYPE.

- The *Chêng* of China, No. 96, Case 3, Gallery 27.
 The *Sho*, No. 98, and the *Schoschi-bouie* (*Jinniritsi*), No. 1552, of Japan, Case 11, Gallery 27.
 The *Heem* of Burmah, No. 290, Case 14, Gallery 27.
 The *Phan* of Siam, No. 241, Case 14, Gallery 27.
 The *Kronee* of the Malay Archipelago, No. 810, Gallery 28.

The ribbon-reed form is found among the North American Indians.

SECTION C. CUP MOUTHPIECES.

- The *Lapa*, No. 2338, Case 1a, the *Tung Kéo*, No. 23, Case 1, the *Hwang-teih*, No. 2220, Case B, the *Fang-Tung*, No. 1695, Case 1, of China, Gallery 27.
 The *Jindai Rappa* of Japan, No. 583, Case 11, Gallery 27.
 The *Shunk*, No. 1763, Case 17, and the serpentine *Rana Shringa*, No. 161, Case 17, of India, Gallery 27.

The Ivory Horns of Africa, blown on the side, and the reed and gourd trumpets of South America, Gallery 28.

CATALOGUE

OF

CLASS II. WIND INSTRUMENTS.

DIVISION I. WITHOUT A KEYBOARD.

SECTION A. WHISTLES.¹

(1) VERTICAL FLUTES.

GALLERY 26. CASE 62.

(East Wall.)

869. VERTICAL FLUTE. Aulos. Cylindrical tube of wood, the upper end cut to a thin edge, the lower part pierced with five holes. This instrument is blown vertically, the breath being directed on the thin upper edge of the tube, a method adopted in the earliest form of the flute, as shown by the illustrations on the Egyptian temples. The principle has again been introduced as a novelty in the Giorgi flute. Lowest note C. Greece. 19th Century.

Length, 1 foot $7\frac{3}{4}$ inches.

441. VERTICAL FLUTE. Kaval. A cylindrical tube of wood, the upper end cut to a thin edge, pierced with 6 holes in front and one behind. Played in a similar manner to the Aulos (No. 869). Lowest note F. Bulgaria. 19th Century.

Length, 1 foot $2\frac{1}{4}$ inches.

927. VERTICAL FLUTE. Kaval. A cylindrical tube of light red wood, similar to the preceding, with bone mountings. Lowest note A. Bulgaria. 19th Century.

Length, 2 feet $8\frac{1}{2}$ inches.

¹ See Preface to Wind Instruments, page 101.

431. VERTICAL FLUTE. Similar to the preceding. Lowest note A. Europe. 19th Century.
Length, 2 feet 8 inches.
868. VERTICAL FLUTE. Cylindrical tube of light wood, having 7 finger-holes in front and one behind. At the bottom, 3 holes for regulating the pitch. Lowest note B flat. Europe. 19th Century.
Length, 2 feet 5½ inches.
872. WHISTLE FLUTE. Fiscordella. Tube of natural reed, with 6 holes in front and one behind. Lowest note B flat. Italy. 19th Century.
Length, 13 inches.
873. WHISTLE FLUTE. Floyera. Tube of natural reed, pierced with 6 holes in front. Lowest note C. Greece. 19th Century.
Length, 12½ inches.
443. WHISTLE FLUTE. Pistalca. Inverted conical tube of unpolished wood, the upper end stopped with a block and provided with a whistle placed at the back. Six finger-holes. Lowest note C. Bulgaria. 19th Century.
Length, 12 inches.
877. WHISTLE FLUTE. Pitos. Similar to the preceding. Lowest note D. Spain. 19th Century.
Length, 11 inches.
878. WHISTLE FLUTE. Pitos. Tube of natural reed, pierced with 5 holes in front. Lowest note F. Spain. 19th Century.
Length, 9¾ inches.
448. WHISTLE FLUTE. Instrument of natural reed, similar to the preceding. Six holes in front, one behind. Lowest note C. Russia. 19th Century.
Length, 9¼ inches.
879. WHISTLE FLUTE. Tube of natural reed, similar to the preceding, pierced with 6 holes in front and one behind. The lowest note F. Used by the shepherds. Italy. 19th Century.
Length, 8¾ inches.

880. WHISTLE FLUTE. Tube of natural reed, the upper end stopped with a plug of wood and cut in beak-shape. Five holes pierced in front and one behind. Lowest note G. Crete. 19th Century.

Length, $8\frac{3}{4}$ inches.

875. WHISTLE FLUTE. Constructed of hard paste or Palissy enamel. Six holes in front. Lowest note C. France. 19th Century.

Length, 12 inches.

1846. JESTER'S FLUTE. A wooden instrument made in the form of a Flûte Douce. It is not, however, intended for musical performances, but was used by the jesters for comic effects. Between the imaginary mouthpiece and the key-holes is a hollow wooden ball, which was filled with flour, and when the unwary spectator was asked to play the flute the force of his breath ejected the flour into his face through two small tubes provided for the purpose. France. 18th Century. Reproduction.

Length, 1 foot 4 inches.

2722. VERTICAL FLUTE *in F*. A cylindrical tube of cocus-wood with horn mounts. Six finger-holes and five silver keys. This specimen is of eccentric design, having a short piece of tubing placed across the upper end; in this a small ivory beak or mouth-piece¹ is inserted, through which the air is directed against the edge of the lip-hole. England. 19th Century.

Length, 1 foot 7 inches.

1511. FLÛTE DOUCE *in F*. Inverted conical tube of light wood, mounted with horn, the beak or mouthpiece also of horn. Germany. 19th Century.

Length, 1 foot $6\frac{3}{4}$ inches.

2208. FLÛTE DOUCE *in G*. Inverted conical tube of light wood, mounted with horn. Germany. 18th Century.

Length, 1 foot $5\frac{1}{4}$ inches.

909. FLÛTE DOUCE *in F*. Inverted conical tube. The whole instrument is made of ivory, the upper joint and bell joint elaborately carved with foliage, the mouthpiece formed in the shape of a grotesque head. The end of this instrument has been replaced. France. 17th Century.

Original length, 1 foot 7 inches.

¹ Patented by Townley. See note to No. 2666, page 130.

908. FLÛTE DOUCE *in F*. Inverted conical tube. The whole instrument is made of ivory, otherwise similar in construction to the preceding. Germany. 17th Century.

Length, 1 foot 5 inches.

1305. WHISTLE FLUTE *in A flat*. Flûte à bec. Inverted conical tube of stained wood, the upper end terminating in a small ivory beak for insertion into the mouth. Seven holes in front, the lowest hole stopped by the little finger. One hole at the back. An additional key at the bottom of the instrument gives B natural. England. Early 19th Century.

Length, 1 foot $7\frac{1}{2}$ inches.

In the smaller instruments described in this catalogue under the title *flûte douce*, the old English *recorder* and German *plockflöte*, the shaped plug or stopper of the flute is inserted into the mouth of the player. In those described as *flûte à bec*, the plug is covered by a hollow cap, usually containing a sponge to absorb the moisture of the breath, at the top of which is a small ivory beak or mouthpiece. The cap acts as a *porte vente*, or air chamber.

This latter form of whistle flute was very popular at the beginning of the 19th Century, and is often called the *flageolet*. The flageolet, however, is an entirely distinct instrument, being the small whistle flute with four holes in front and two at the back, introduced into general notice during the 17th Century. See Mersenne, "De Instrumentis Harmonicis," 1636.

901. WHISTLE FLUTE *in A flat*. Flûte à bec. Inverted conical tube of light wood, mounted with ivory and having an ivory beak; similar in construction to the preceding. Between the holes are small ivory studs to secure the proper position of the fingers. The instrument has 3 flat white metal keys; 2 at the lower end, opening holes pierced side by side, giving D sharp and E flat; the third, a straight key, placed immediately behind the whistle, assists the production of the octave. A minute hole, which was employed by Quants in the early part of the 18th Century on the Transverse Flute, is placed at the right of the two lower keys. England. Early 19th Century. Inscribed "Bainbridge & Wood, London."

Length, 1 foot 7 inches.

1646. WHISTLE FLUTE *in C*. Flûte à bec. Inverted conical tube of light wood, mounted with ivory and similar to the preceding (No. 901). Two silver keys at the bottom for D sharp and E flat. No speaker key. England. Early 19th Century. Inscribed "Bainbridge, Teacher and Inventor, London." Cap renewed by Wyley, London.

Length, 1 foot 4 inches.

1816. WHISTLE. Brass body, engraved, bearing the initials "I. L. A." England. 19th Century.
Length, 3 inches.

2399. WHISTLE. Of turned ivory. Within the tube is a bead producing a trilling effect. Europe. 19th Century.
Length, 5 inches.

2308. PIPE in C. Galoubet. A narrow cylindrical tube of ebony, mounted with ivory, with 2 holes in front and one at the back. France. 18th Century.
Length, 10½ inches.

This instrument is used with the *Tabor* (see No. 852, page 213) or with the *Tambourin à Cordes* (see No. 999, page 60), and is held in the left hand of the player, while the right hand beats an accompaniment. A scale of nearly 2 octaves can be produced upon this pipe by proper use of the harmonic notes, which are easily produced. It is also known under the name *Chirula*.

For another example of the Galoubet, see No. 934, page 60.

FAMILY OF GALOUBETS.

These four instruments, Nos. 1761, 870, 936 and 935, form a set or family of Galoubets.

1761. PIPE. Galoubet. *Bass in C*. Cylindrical tube of stained wood, similar to the preceding, but provided with a bent brass crook to bring the holes within easy reach of the performer. Germany. 17th Century. Reproduction.

Length, 2 feet 1½ inches, not including crook.

870. PIPE. Galoubet. *Tenor in F*. Cylindrical tube of stained wood, mounted with ornamental lead work, the whistle also finished in the same way. Teneriffe. Early 18th Century.

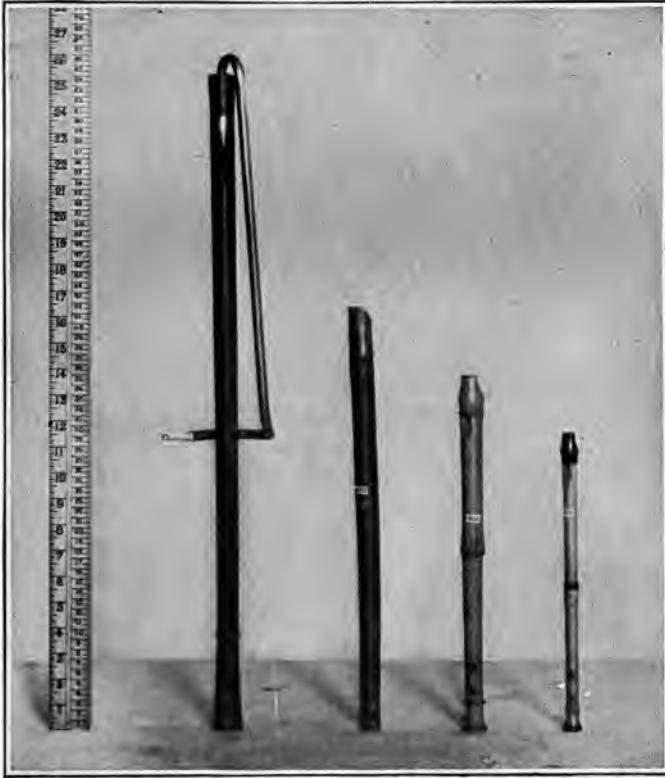
Length, 1 foot 4½ inches.

936. PIPE. Galoubet. *Alto in A*. Cylindrical tube of boxwood, similar to the preceding, but larger. Provence, France. 19th Century.

Length, 13¾ inches.

935. PIPE. Galoubet. *Treble in C*. Narrow cylindrical tube of boxwood, with horn mounts. Provence, France. 19th Century.

Length, 11½ inches.

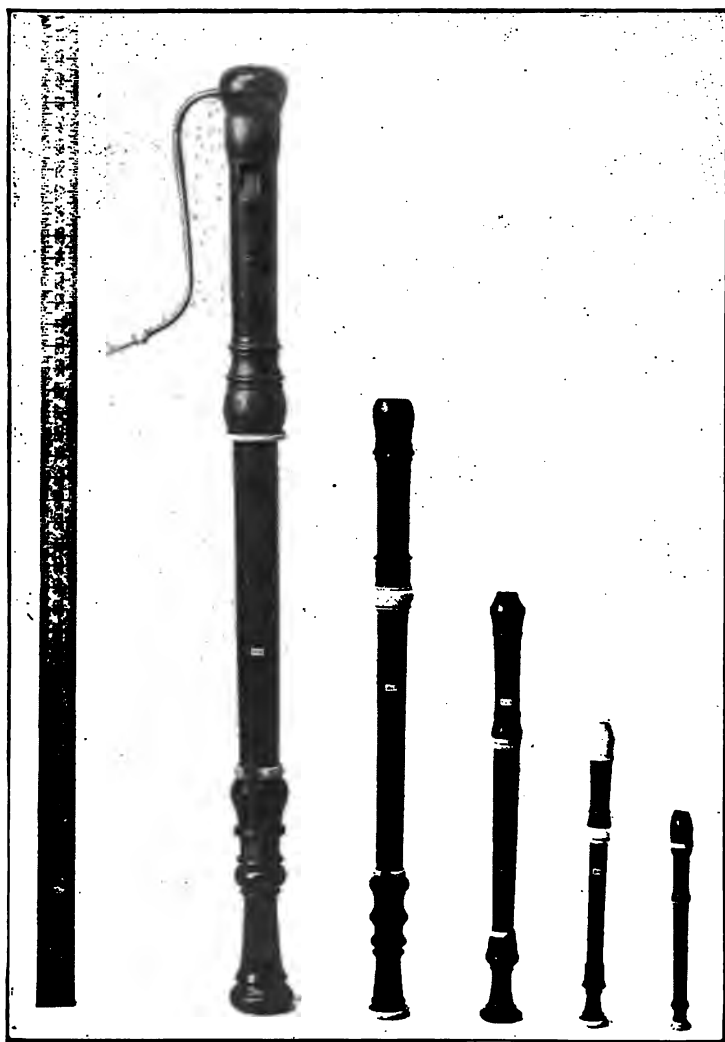


a. *b.* *c.* *d.*

FAMILY OF GALOUBETS.

Page 118.

- a.* No. 1761. Bass in C.
b. No. 870. Tenor in F.
c. No. 936. Alto in A.
d. No. 935. Treble in C.



a.

b.

c.

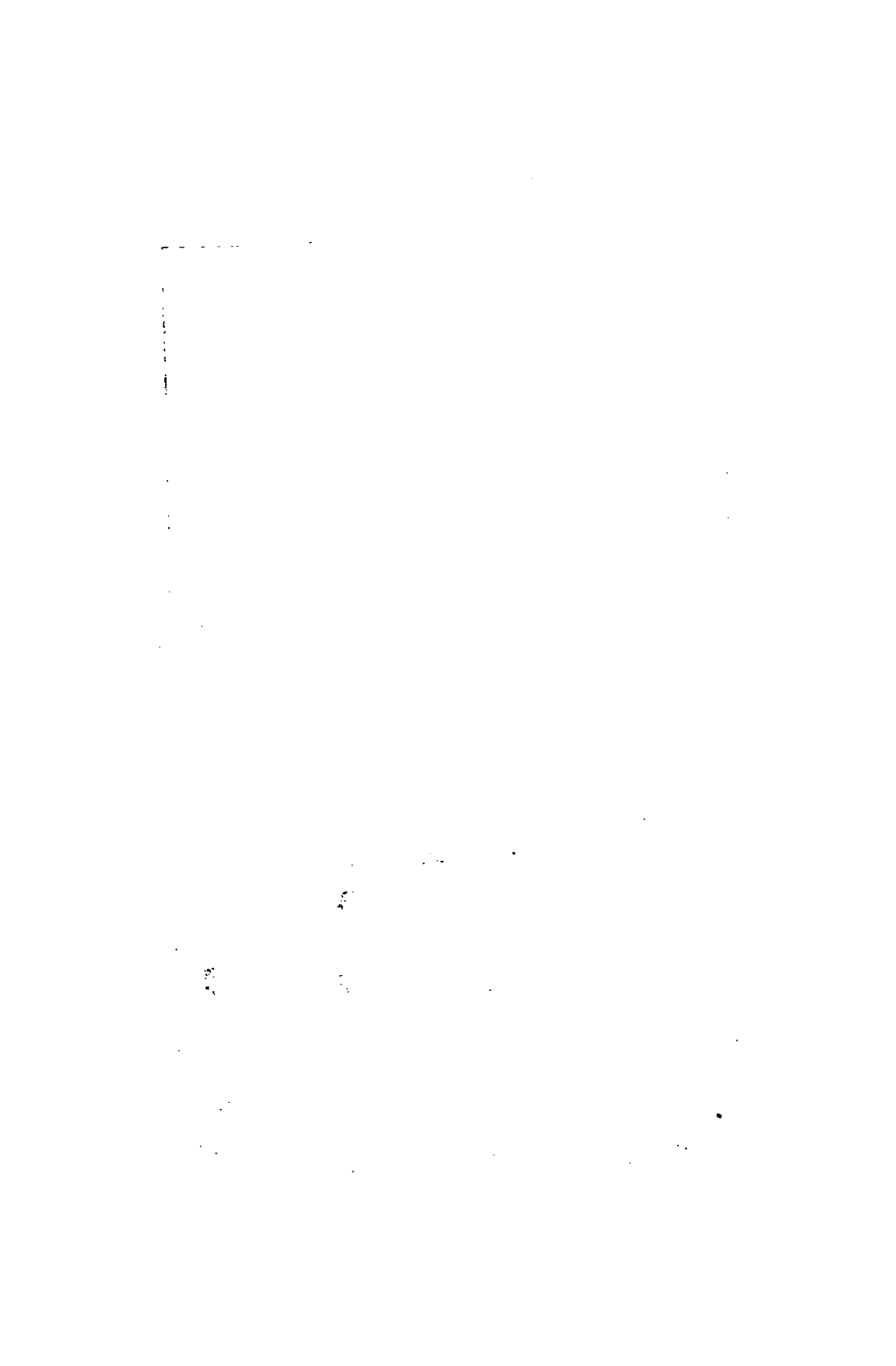
d.

e.

FAMILY OF THE FLûTE DOUCE OR RECORDER.

SMALL SET.

- | | | |
|--|--|---|
| <i>a.</i> No. 906. Bass in F....page 119 | \| | <i>c.</i> No. 910. Alto in F....page 119 |
| <i>b.</i> No. 907. Tenor in B flat " 119 | \| | <i>d.</i> No. 912. Treble in B flat " 120 |
| <i>e.</i> No. 2627. High Treble in F....page 120 | | |



1815. PAN PIPES. *Syrinx*. Fifteen metal tubes placed side by side, soldered together, stopped at their lower ends, and giving a diatonic scale of 2 octaves, from C to C. Europe. 18th Century.

Length of longest pipe, $6\frac{1}{2}$ inches.

1154. PAN PIPES. Five small tubes of reed, the lower end stopped by a natural knot, fixed within a transverse piece of cane, giving the notes F, G, A, B, C. Europe. 19th Century.

Length of longest pipe, $4\frac{1}{4}$ inches.

1155. PAN PIPES. *Cuckoo*. Two small pipes of wood inserted into an oak block and giving the notes G and E flat. Europe. 19th Century.

Length, $6\frac{1}{4}$ inches.

FAMILY OF THE FLÛTE DOUCE OR RECORDER.

SMALL SET.

These five instruments, Nos. 906, 907, 910, 912, 2627, form a family of the lesser *Flûtes Douces*, to which the name of *Recorder* is given by Shakespeare in the 16th Century, and confirmed by Prætorius in his "*Syntagma Musicum*," 1618.

906. FLÛTE DOUCE. Recorder. *Bass in F*. Inverted conical tube of stained wood, mounted with ivory, the upper part furnished with a cap to which is added a brass tube to bring the instrument within reach of the player. Below the cap the whistle mouthpiece. Seven holes in front, one hole behind. The lowest note closed by a brass key. Germany. 18th Century.

Length, 3 feet $6\frac{1}{2}$ inches.

907. FLÛTE DOUCE. Recorder. *Tenor in B flat*. Inverted conical tube of stained wood, mounted with ivory, the upper end terminating in a wooden beak fitted to the shape of the mouth. Seven holes in front, the lowest hole closed with a flat brass key. One hole at the back. Germany. 18th Century.

Length, 2 feet 4 inches.

910. FLÛTE DOUCE. Recorder. *Alto in F*. Inverted conical tube of stained wood, similar to the preceding. The bottom hole stopped by a finger instead of a key. Germany. 18th Century.

Length, 1 foot 7 inches.

912. FLÛTE DOUCE. Recorder. *Treble in B flat*. Inverted conical tube of stained wood, similar to preceding. Germany. 18th Century. Signed "T. Borkhout."
Length, 13½ inches.

2627. FLÛTE DOUCE. Recorder. *High Treble in F*. Inverted conical tube of stained wood, similar to the preceding. Reproduction. Germany. 18th Century.
Length, 10 inches.

CASE 62 a.

FAMILY OF THE FLÛTE DOUCE OR RECORDER.

LARGE SET.

These six instruments, Nos. 682, 2352, 2045, 2644, 2663, 2695, form a complete family of the larger *Flûtes Douces*, as used in the 16th and early part of the 17th Centuries.

- 682.¹ FLÛTE DOUCE. Recorder. *Contra Bass in D*. Inverted conical tube of light wood, pierced with 7 holes in front, the lowest one covered by a long brass key having double touch-pieces, the mechanism hidden by a pierced cover of wood. One hole at the back. The instrument is blown by means of a curved tube of wood similar to that of the bassoon, but only intended to convey the wind from the mouth of the performer to the whistle; the length of it in no way affects the pitch of the instrument. Belgium. 16th Century. Reproduction. Original in the Musée d'Antiquités du Steen, Antwerp.

Length, 8 feet 6 inches, not including crook.

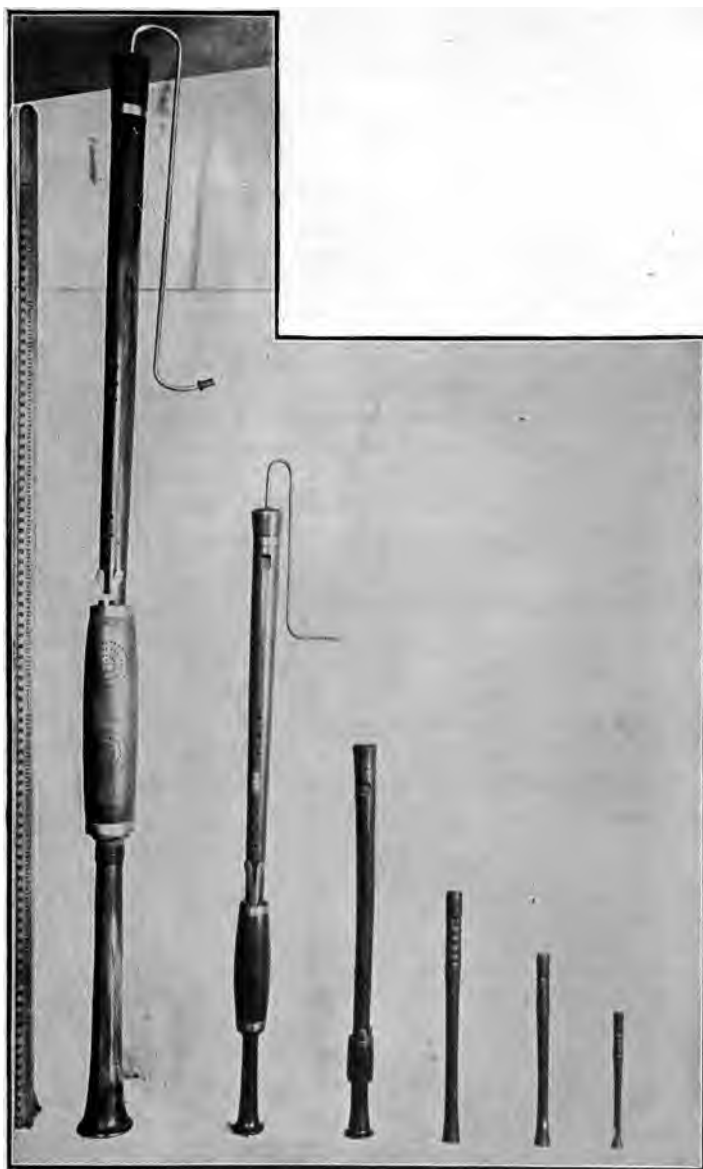
2352. FLÛTE DOUCE. Recorder. *Bass in C*. Inverted conical tube of light wood, pierced with 7 holes in front, the lowest one covered by a long brass key having double touch-pieces, the mechanism hidden by a pierced cover of wood. One hole at the back. France. 16th Century.

Length, 4 feet 11 inches, not including crook.

- 2045.² FLÛTE DOUCE. Recorder. *Tenor in G*. Inverted conical tube of stained wood, pierced with 7 holes in front, the lowest closed by a brass key having double touch-pieces working under a perforated cover. One hole at the back. This

¹ No. 682. Reproduction procured through the courtesy of Baron de Vinck de Winnezele, Director of the Musée d'Antiquités du Steen at Antwerp.

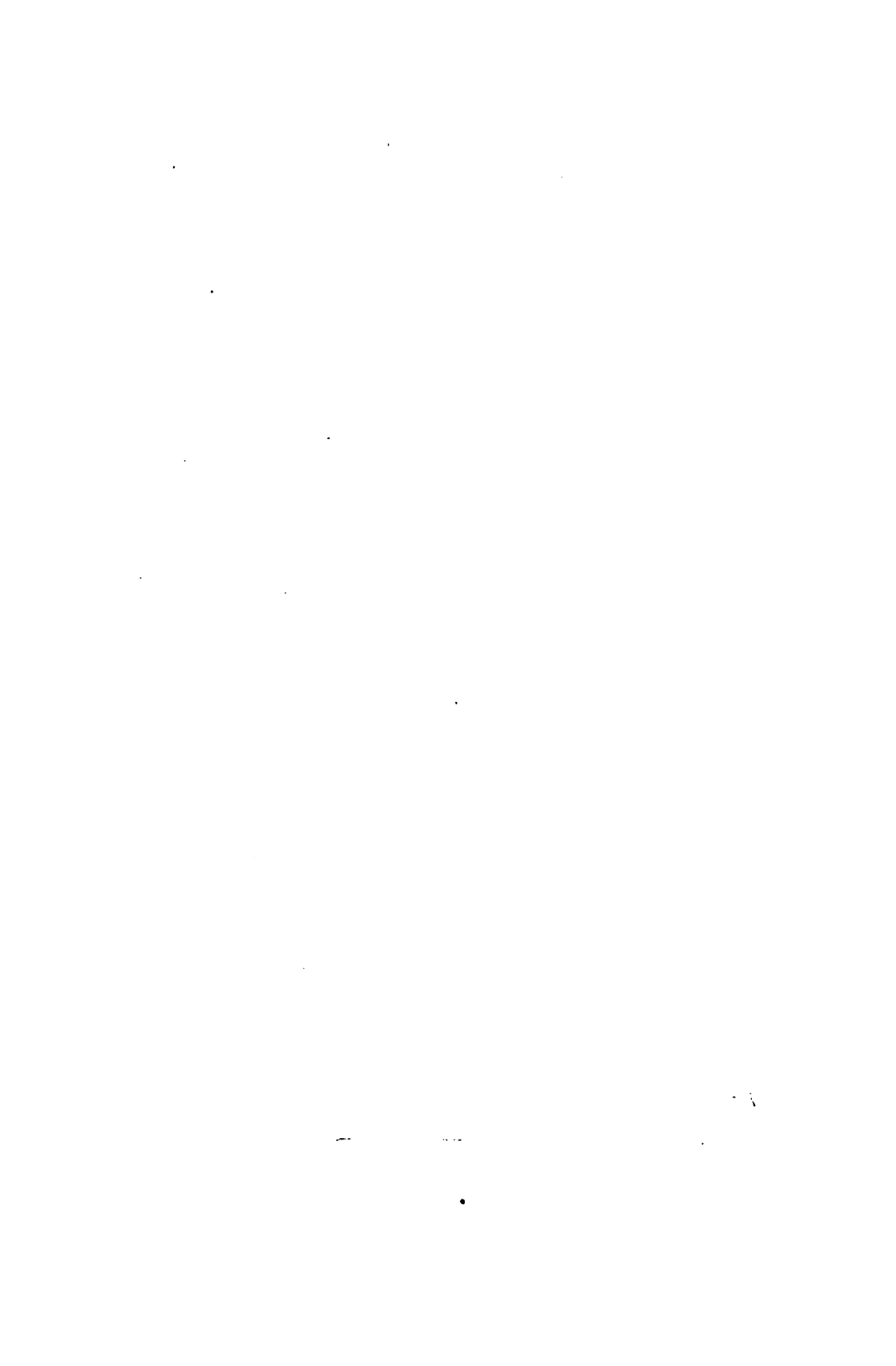
² No. 2045. Reproduction obtained through the courtesy of Professor Frederico Vellani, Secretary of the Museo del Liceo Musicale, Bologna.



FAMILY OF THE FLûTE DOUCE OR RECORDER.

LARGE SET.

	Page.		Page.
<i>a.</i> No. 682. Contra Bass in D	120	<i>d.</i> No. 2644. Alto in C.....	121
<i>b.</i> No. 2352. Bass in C.....	120	<i>e.</i> No. 2663. Treble in G.....	121
<i>c.</i> No. 2045. Tenor in G.....	120	<i>f.</i> No. 2695. High Treble in C..	121



instrument is blown through a small hole in the cap. Italy. 16th Century. Reproduction. Original in the Museo Liceo Musicale, Bologna.

Length, 3 feet $\frac{1}{2}$ inch.

- 2644.¹ FLÛTE DOUCE. Recorder. *Alto in C*. Inverted conical tube of stained wood, similar to preceding. Europe. 16th Century. Reproduction. Original in the Germanischen National Museum, Nuremberg.

Length, 1 foot 11 inches.

- 2663.¹ FLÛTE DOUCE. Recorder. *Treble in G*. Inverted conical tube of stained wood, similar to preceding, but the lowest hole stopped by a finger instead of a key. Germany. 16th Century. Reproduction. Original in the Germanischen National Museum, Nuremberg.

Length, 1 foot 6 inches.

- 2695.¹ FLÛTE DOUCE. Recorder. *High Treble in C*. Inverted conical tube of stained wood, similar to preceding. Germany. 16th Century. Reproduction. Original in the Germanischen National Museum, Nuremberg.

Length, 12 $\frac{1}{2}$ inches.

CASE 61.

916. FLAGEOLET. Small tube of dark wood, with four holes in front and 2 behind. Lowest note C. France. 18th Century. Impressed with a capital M.

Length, 5 $\frac{1}{2}$ inches.

The Flageolet, which was known in the Middle Ages as the *Flagiol*, became very popular in the 17th Century. It differs from the *Flûte Douce* and *Flûte à Bec* in having 4 holes only in front and 2 holes instead of one at the back. This instrument must not be confused with the late 18th Century *Flûte à Bec*, which has received the erroneous name of Flageolet. See note to No. 1305, page 117.

1634. FLAGEOLET. Ebony tube, with ivory mounts. Four holes in front and 2 behind. Lowest note B flat. France. 19th Century. Maker, C. D. Noblet, Paris.

Length, 6 $\frac{1}{2}$ inches.

¹ Nos. 2644, 2663, 2695. Reproductions obtained through the courtesy of Dr. Gustav von Bezold, First Director of the Germanischen National Museum in Nuremberg.

915. FLAGEOLET. Instrument made of ivory throughout, decorated in the upper part with ornamental turning. Four holes in front and 2 behind. Lowest note C. France. 18th Century. Length, $6\frac{1}{2}$ inches.
From the Collection of the Count de Bricqueville.
913. FLAGEOLET. Tube of stained black wood, mounted with ivory. Four holes in front, 2 behind. Lowest note F. France. 19th Century. Inscribed "Millet."
Length, 9 inches.
1632. FLAGEOLET. Tube of stained black wood, mounted with ivory. Four holes in front and 2 behind. Lowest note F. Belgium. 18th Century.
Length, 11 inches.
2309. FLAGEOLET. The body of the instrument of a very narrow tube of ebony, with 4 holes in front and 2 behind. The upper part, or *porte vente*, enlarged and terminated by a long beak. Lowest note D. France. 18th Century.
Length, $10\frac{1}{2}$ inches.
1633. FLAGEOLET. Tube of light wood, mounted with ivory, with long headpiece. Four holes in front, 2 behind. Lowest note B flat. Belgium. Early 19th Century.
Length, 12 inches.
904. FLAGEOLET. Light wood, with horn mountings. Four holes in front, 2 behind. Lowest note F. France. 19th Century.
Length, 1 foot 3 inches.
911. FLAGEOLET. Tube of stained black wood, with German silver mountings and pearl beak. Four holes in front and 2 behind. Five German silver keys mounted on pillars. Lowest note F. France. Late 19th Century.
Length, 1 foot $3\frac{1}{4}$ inches.
2406. FLAGEOLET. Stained wood, with ivory mounts. Four holes in the front, 2 behind. Lowest note C. The head of the instrument is curiously constructed in stages consisting of 3 parallel tubes united by small cross-tubes. Either the design is eccentric or is intended in some way to facilitate the holding of the flageolet. France. 19th Century.
Length, 2 feet $\frac{1}{2}$ inch.

930. CANE FLUTE. Stick of dark, stained wood, the lower part solid, the upper part bored in a way similar to that of the Whistle Flutes. Six holes in front and one behind. Two holes immediately above the solid joint regulate the pitch of the lowest note. Six white metal keys with black ends, mounted in grooves in the wood. The handle of the stick pierced with 2 small holes, communicating with the whistle. Lowest note F. France. c. 1800. Maker, F. Scholnast, Presburg.

Length, 2 feet 11 inches.

From the Collection of the Count de Bricqueville.

928. CANE FLUTE. Instrument similar to preceding, but with one brass E flat key. Lowest note F. Germany. 18th Century.

Length, 2 feet 9½ inches.

1243. CANE FLUTE. Similar to the preceding, with one brass E flat key, which in this case, however, is wisely placed at the back of the instrument. Stick ivory mounted. Lowest note F. U. S. A. Early 19th Century.

Length, 1 foot 7½ inches.

- 1844.¹ FLÛTE POLYPHONIQUE. This instrument is a combination of 5 flûtes douces, which are inserted into a hollow cross-piece of wood, to which is attached a central mouthpiece. The first, third and fifth flutes are parallel; the second and fourth placed at an angle. The third, or central flute, pierced with 7 holes in front, the bottom hole double for right or left hand player, and one hole at the back, giving a diatonic scale of two octaves and one note, from A flat to B flat. This second flute is pierced with 3 small holes in front, giving a diatonic scale from B flat to E natural. The fourth flute, with one hole near the bell at the back, giving A flat. The fifth flute, also with one hole at the back, giving C. The first flute has no holes and gives E flat. Italy. 17th Century. Reproduction. Original in the Museo Liceo Musicale, Bologna. A description of this curious instrument is given in Kircher's "Musurgia Universalis" (Rome, 1650), where the invention is attributed to his friend, Manfred Septala.

Length of longest tube, 1 foot 3½ inches.

2648. RUSTIC FLUTE. Cylindrical tube of rough wood, pierced with 4 holes in front. Lowest note C. Austria. 19th Century.

Length, 1 foot 1 inch.

¹ No. 1844. Reproduction obtained through the courtesy of Prof. Frederico Vellani, Secretary of the Museo del Liceo Musicale, Bologna.

2672. RUSTIC FLUTE. Similar to preceding. Cylindrical tube of rough wood, much worm-eaten. Austria. 19th Century.
Length, 1 foot 1 inch.

2398. DOUBLE FLUTE. Constructed of light wood, the 2 tubes bored side by side in the same block. Seven holes in front, and at the back one hole communicating with the right-hand tube. The front holes are placed side by side and are simultaneously covered by the finger. Lowest notes D and F sharp. Germany. 18th Century. Stamped "Ammann."
Length, 10½ inches.

905. DOUBLE FLUTE. Constructed, as in preceding instruments, simply of one solid block of light wood. At the back 3 holes, 2 at the top communicating with either tube, one at the bottom of the left-hand tube to regulate the pitch. Lowest notes G and E flat. Europe. 18th Century.
Length, 10¼ inches.

2082. DOUBLE FLUTE. Dvojnica. Similar to the preceding. Of white wood, inscribed with circles. The lowest note of both sides, C. Montenegro. 19th Century.
Length, 12¾ inches.

1589. DOUBLE FLUTE. Souravlia. Made out of one piece of dark wood, the two bores being formed almost parallel with each other. In the upper part the tubes are concealed within one headpiece; in the lower part the wood is cut away and the tubes are distinct, but united at the bottom with a small wooden cross-bar. The surface of the flute covered with geometrical designs. On the right-hand tube 4 holes in front; on the left-hand 3. Lowest note of both tubes C. Bosnia. 19th Century.
Length, 13 inches.

903. DOUBLE FLUTE. Instrument of light wood, mounted with ivory. The upper part made in one block, with a cap covering the two mouthpieces and terminating in an ivory beak. The tubes, equal in length, are made separately and fitted into the upper block. Lowest note C. On the right-hand tube, 5 finger-holes and 3 flat silver keys. On the left-hand tube, 8 finger-holes and 2 flat silver keys. By an ingenious lever mechanism either tube can be silenced at will. England. Early 19th Century. Makers, Bainbridge & Wood, London.
Length, 1 foot 4 inches.

~~902. ^{Triple} ~~DOUBLE~~ FLUTE.~~ Instrument of light wood, mounted with ivory. Similar to the preceding (No. 903). On the right-hand tube, 5 holes and 3 flat brass keys, and on the left-hand tube, 7 holes and 2 flat brass keys. Lowest note A flat. England. Early 19th Century. Maker, Simpson, London.
Length, 1 foot 6½ inches.

2536. DOUBLE FLUTE. Instrument of light wood, (similar in construction to that of the preceding (No. 903).) The right-hand tube, which is longer than the left, is furnished with 4 finger-holes and 5 flat brass keys, including the low C and B keys. The left-hand tube has 6 finger-holes and 5 brass keys. In the upper part of this tube is a new upper C key attached to the block. Lowest notes B natural and C sharp, sounding G and A. England. c. 1825. Maker, Bastrick, London.
Length, 1 foot 8½ inches.

1122. FLÛTE HARMONIQUE. A long narrow case, containing 30 metal flue pipes, on a principle similar to that of the flûte douce, giving a chromatic scale of 2 octaves and 5 notes from G to C. An india-rubber tube passes to the mouth, from which the wind is supplied. The pipes are furnished with small touches similar to the pistons used in brass-valved instruments, the naturals being white, the sharps black. France. 19th Century. Maker, Baduel à Louvrièr.

Length, 1 foot 9 inches. Width, 3½ inches. Depth, 9½ inches.

914. TUNING PIPE. Tube of stained wood, mouthpiece similar to that of the flûte douce. A graduated tube sliding within gives a chromatic scale of one octave, from A to A. England. 18th Century. Maker, Liddle, London.

Length, 6½ inches.

1158. PITCH PIPE. A square tube, with sliding block. England. Early 19th Century. Reproduction.

Length, 8 inches.

501. PITCH PIPE. A flat rectangular body, the whistle formed in one of the narrow sides. A block of wood sliding within it gives the chromatic scale of one octave and two notes, from F to G. France. 16th Century. Reproduction.

Length, 6 inches. Width, ¾ inches. Depth, 1⅛ inches.

The original belonged to Col. John Chester, who distinguished himself at the battle of Bunker Hill.

1189. PITCH PIPE. A four-sided tube of stained wood, with a graduated wooden rod sliding within it, giving a scale of chromatic notes from A to A. England. 18th Century.
Length, 1 foot $4\frac{1}{4}$ inches.
2122. OCARINA in G. Egg-shaped body of blue and white porcelain with nine finger-holes, and having on one side a projection through which the air passes from the mouth to the whistle. Europe. 19th Century.
Length, $7\frac{1}{2}$ inches.
1157. OCARINA in E flat. Light earthenware body, pierced with 9 holes. Italy. 19th Century. Maker, Sylvestri Luigi.
Length, $5\frac{1}{2}$ inches.
2093. OCARINA in C. Egg-shaped body of earthenware, painted black and gold, with 9 finger-holes. Austria. 19th Century. Maker, H. Fiehn, Vienna.
Length, 8 inches.
2094. OCARINA in C. Flat pitch. Similar to preceding.
Length, $6\frac{1}{2}$ inches.
2095. OCARINA in C. Similar to preceding.
Length, $6\frac{1}{4}$ inches.
1156. OCARINA in E flat. Similar to preceding, but with 10 finger-holes.
Length, 5 inches.

FAMILY OF OCARINAS.

The following five instruments, Nos. 2469, 2470, 2471, 2472, 2473, form a family or set of Ocarinas. The Ocarina is of Tyrolese or Austrian origin, and is the modern representative of the ancient Chinese Hsüan, supposed to have been invented 3000 B. C.

2469. OCARINA. Bass in C. Body of brown earthenware pierced with 9 finger-holes. Italy. 19th Century. Maker, C. Ficinelli, Budrea.
Length, 9 inches.
2470. OCARINA. Tenor in G. Similar to preceding.
Length, $7\frac{1}{2}$ inches.
2471. OCARINA. Alto in C. Similar to preceding.
Length, 7 inches.
2472. OCARINA. Soprano in G. Similar to preceding.
Length, 6 inches.

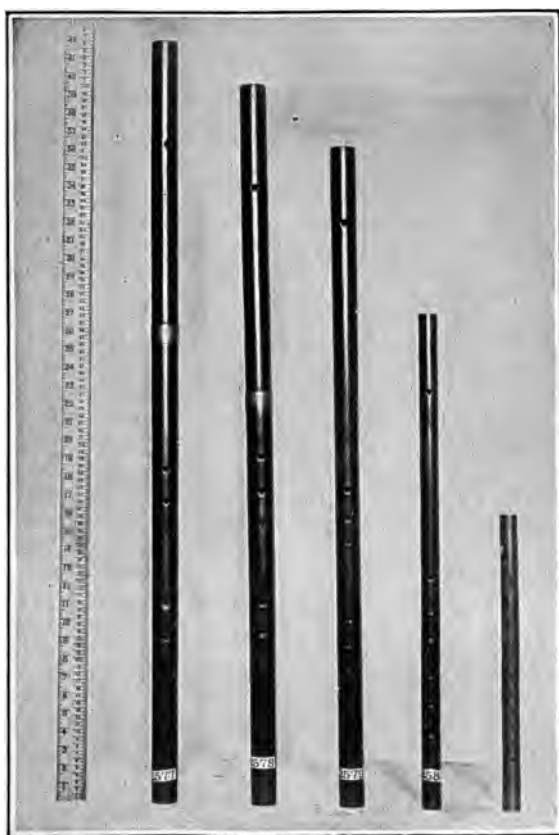


a. b. c. d. e.

FAMILY OF OCARINAS.

a. No. 2469.	Bass in C.....	page 126
b. No. 2470.	Tenor in G.....	" 126
c. No. 2471.	Alto in C.....	" 126
d. No. 2472.	Soprano in G.....	" 126
e. No. 2473.	High Soprano in C.....	" 127





a. *b.* *c.* *d.* *e.*

FAMILY OF TRANSVERSE FLUTES.

Without Keys.

Page 127.

- a.* No. 2577. Bass in C.
- b.* No. 2578. Tenor in F.
- c.* No. 2579. Alto in G.
- d.* No. 2580. Soprano in C.
- e.* No. 2626. High Soprano in Octave C.

2473. OCARINA. *High Soprano in C*. Similar to preceding, but pierced with 10 finger-holes.
Length, 5 inches.

(2) TRANSVERSE FLUTES.

FAMILY OF TRANSVERSE FLUTES.

WITHOUT KEYS.

CASE 61 a.

The following five instruments, Nos. 2577, 2578, 2579, 2580, 2626, form a family of Transverse Flutes similar to those used in the 16th Century. They are of cylindrical bore and without keys

- 2577.¹ TRANSVERSE FLUTE. *Bass in C*. Cylindrical tube of stained wood, made in 2 pieces and brass-mounted, pierced with 6 finger-holes in front, the 3d and 6th holes double, and 2 thumb-holes at the back, each double. Italy. 16th Century. Reproduction. Original in the Museo Civico, Verona.
Length, 3 feet 7 inches. Diameter of bore, 1 inch.
- 2578.¹ TRANSVERSE FLUTE. *Tenor in F*. Similar to preceding. Cylindrical tube of wood made in two pieces and brass mounted. Pierced in front with 6 finger-holes. Italy. 16th Century. Reproduction. Original in the Museo Civico, Verona.
Length, 3 feet 2½ inches.
- 2579.¹ TRANSVERSE FLUTE. *Alto in G*. Similar to preceding. Cylindrical tube of wood made in 2 pieces and brass mounted. Pierced in front with 6 finger-holes. Italy. 16th Century. Reproduction. Original in the Museo Civico, Verona.
Length, 3 feet.
- 2580.¹ TRANSVERSE FLUTE. *Soprano in C*. Similar to preceding. Cylindrical tube of wood made in 2 pieces and brass mounted. Pierced in front with 6 finger-holes. Italy. 16th Century. Reproduction. Original in the Museo Civico, Verona.
Length, 2 feet ¾ inches.
2626. TRANSVERSE FLUTE. *High Soprano in octave C*. Similar to the preceding but made in one piece. Reproduction. Italy. 16th Century.
Length, 1 foot 4 inches.

¹ Nos. 2577, 2578, 2579, 2580. Reproductions obtained through the courtesy of the Mayor of Verona.

FAMILY OF TRANSVERSE FLUTES.

WITH KEYS.

CASE 60.

These five instruments, Nos. 2038, 2030, 2031, 923 and 919, form a family or set of Transverse Flutes as used in the early part of the 19th Century, being furnished with keys.

2038. TRANSVERSE FLUTE. *Bass in C*. Inverted conical tube of light wood, ivory mounted, the head being turned by a brass elbow joint as in the previous specimen. Four of the ordinary finger-holes stopped by brass keys, also by a long key at the bottom of the instrument. France. Early 19th Century.

Length, 4 feet 1 inch.

2030. TRANSVERSE FLUTE. *Tenor in F*. Inverted conical tube of stained wood, the head bent back by a brass elbow joint in order to bring the finger-holes within easy reach of the player. Four metal keys. England. Early 19th Century.

Total length, 2 feet 10 inches.

2031. TRANSVERSE FLUTE. *Alto in A*. Inverted conical tube of light wood, mounted with silver and furnished with four silver keys. England. 19th Century. Makers, Clementi & Co., 1819.

Length, 2 feet $5\frac{1}{2}$ inches.

The Alto Flute *in A* is sometimes called the *Flûte d'Amour*.

923. TRANSVERSE FLUTE. *Treble in C*. Inverted conical tube of light wood, mounted with ivory. Six holes in front, with 5 flat brass keys on knobs. This instrument is furnished with 3 additional pieces, two middle joints and one end joint, the latter having the C sharp and C natural. Germany. c. 1800. Stamped "E. F. Starck."

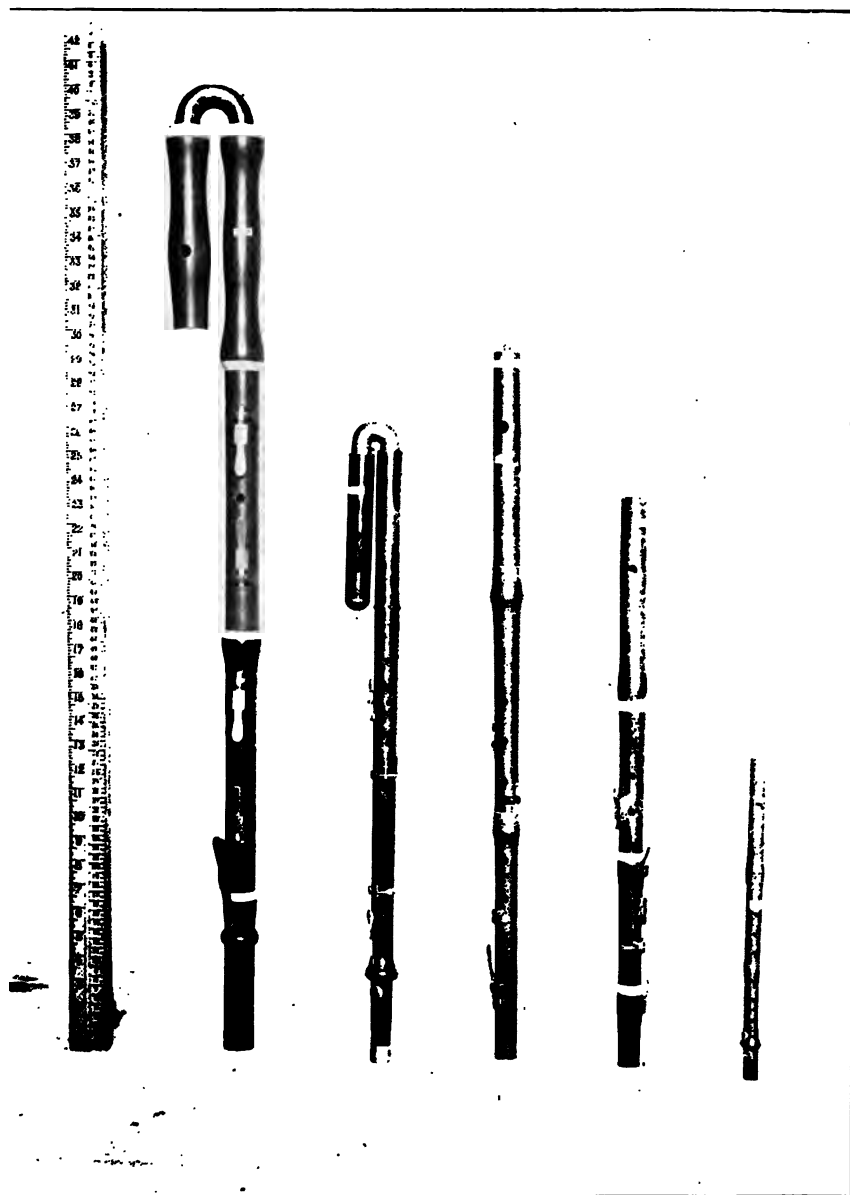
Length, 2 feet.

919. TRANSVERSE FLUTE. *Piccolo. High Soprano in octave C*. Inverted conical tube of stained wood, furnished at the bottom with 1 metal key. France. Early 19th Century.

Length, 13 inches.

920. TRANSVERSE FLUTE *in E flat*. Third Flute. Inverted conical tube of light wood, mounted with German silver, and having at the bottom one metal key. Europe. Early 19th Century.

Length, 1 foot 8 inches.



a. *b.* *c.* *d.* *e.*
 FAMILY OF TRANSVERSE FLUTES. With Keys.

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<p><i>a.</i> No. 2038. Bass in C.</p> <p><i>b.</i> No. 2030. Tenor in F.</p> <p><i>c.</i> No. 919. High Soprano in Octave C.</p>		<p><i>c.</i> No. 2031. Alto in A.</p> <p><i>d.</i> No. 923. Treble in C.</p>
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876. TRANSVERSE FLUTE. Similar to preceding. Lowest note C. Spain. 19th Century.
Length, 11½ inches.
874. TRANSVERSE FLUTE. Similar to preceding. Lowest note B flat. Spain. 19th Century.
Length, 12½ inches.
871. TRANSVERSE FLUTE. Cylindrical tube of reed, pierced with 5 finger-holes in front and ornamented with burnt lines. Lowest note G. Spain. 19th Century.
Length, 1 foot ¾ inches.
2645. [^]FLÛTE D'AMOUR *in A flat*. Tube of box-wood, furnished with 6 finger-holes and one copper key. Presented by M. Victor Charles Mahillon, of the Conservatoire Royal de Musique, Brussels. France. 18th Century.
Length, 2 feet 5½ inches.
2211. TRANSVERSE FLUTE *in C*. Inverted conical tube of light yellow wood, with 6 finger-holes and 10 white metal keys on wooden knobs, with plug stoppers and tuning slide. In addition to the low C sharp and C natural keys there are also long lever keys for low B natural and B flat. Italy. 19th Century. Maker, Cortilini, Turin.
Length, 1 foot 9½ inches.
2173. TRANSVERSE FLUTE *in C*. Inverted conical tube of wood, covered with imitation tortoise-shell; German silver mountings. Six finger-holes and 12 German silver keys on pillars descending to B natural. U. S. A. 19th Century. Maker, Romberg, New York.
Length, 2 feet 3 inches.
1299. TRANSVERSE FLUTE *in C*. Large cylindrical tube of cocus-wood, with conical head. Fourteen German silver keys, the usual finger-holes being covered with patent mechanism, descending to C. Germany. 19th Century.
Length, 2 feet 2 inches.
- This flute shows the revival of the old cylindrical bore, which appears to have been altered to the inverted conical form of the previous specimens about the year 1680, perhaps by the great maker, Denner, of Nuremberg. The cylindrical bore, with the addition of the conical, or, more strictly speaking, parabola-shaped head, was reintroduced by Boehm in 1847.

924. TRANSVERSE FLUTE *in C*. Inverted slightly conical tube of glass with metal mountings and furnished with 4 keys on pillars. France. 18th Century. Maker, Laurent, Paris. Length, 2 feet $\frac{3}{4}$ inch.
From the Collection of the Count de Bricqueville.
925. TRANSVERSE FLUTE *in C*. Inverted conical tube of ivory, with silver mountings. Six finger-holes, 8 silver keys, descending to C. England. Early 19th Century. Clementi & Co.
Length, 2 feet $1\frac{3}{4}$ inches.
2395. TRANSVERSE FLUTE *in C*. Inverted conical tube of ivory, furnished at bottom with one silver key (now missing). France. 18th Century.
Length, 2 feet.
683. TRANSVERSE FLUTE *in C*. Inverted conical tube of cocus-wood, with German silver mountings. Five German silver keys on pillars. France. 19th Century. Maker, Gautrot Ainé, Paris.
Length, 2 feet $\frac{1}{4}$ inch.
2666. TRANSVERSE FLUTE *in C*. Inverted conical tube of dark-stained wood, with six finger-holes and a metal key at the lower end. Over the lip hole, attached by a brass band, is a patent mechanism, consisting of an ivory mouthpiece having a narrow slit through which the air is directed against the edge of the hole, on the same principle as the *Flûte à Bec*. England. 19th Century.
Length, 2 feet $\frac{1}{2}$ inch.
The mouthpiece, which is removable, was patented by Townley, in England, in 1808, and was intended to increase the facility of blowing and to give purity of tone; one form of it was made to expand and contract by pressure of the lips.
2649. TRANSVERSE FLUTE *in C*. Inverted conical tube of cocus-wood with brass mounts. Six finger-holes and 4 round brass keys on wooden knobs. Europe. 19th Century.
Length, 1 foot 11 inches.
2233. TRANSVERSE FLUTE *in C*. Inverted conical tube of stained wood, with ebony and ivory mountings. At the bottom of the instrument one brass key. Italy. 18th Century.
Length, 1 foot 11 inches.

921. TRANSVERSE FLUTE *in E flat*. Third Flute.
Inverted conical tube of light wood, mounted with brass and ivory,
and furnished with a flat brass key at the bottom of the instru-
ment. Germany. 18th Century.
Length, 1 foot 9½ inches.
2396. TRANSVERSE FLUTE *in F*. Inverted conical tube
of ivory in 3 pieces, decorated with ornamental carvings and fur-
nished at the lower end with a silver key. France. 18th Cen-
tury.
Length, 1 foot 6 inches.
2209. TRANSVERSE FLUTE *in high C*. Inverted conical
tube of black stained wood, ivory mounted, fitted at the bottom
with a brass key. The head is furnished with a patent tuning
slide. France. Early 19th Century.
Length, 12¼ inches.
917. TRANSVERSE FLUTE *in high D flat*. Inverted con-
ical tube of ivory, with decorated stopper fitted with tuning slide,
and at the bottom a silver key on pillars. France. Late 18th
Century.
Length, 11½ inches.
2507. TRANSVERSE FLUTE *in high F flat*. Inverted nar-
row conical tube of light red wood, ivory mounted, and furnished
at the bottom with a flat brass key. France. Early 19th Century.
Maker, Winen, Paris.
Length, 9½ inches.
929. CANE FLUTE *in C*. Of light wood, ornamented with
turned bands of same. The lower joint solid. Six finger-holes,
one flat brass key. The stick is finished with a knob. The instru-
ment is blown at the side like the transverse flute. Germany. 18th
Century.
Length, 3 feet.
1370. FIFE *in G*. Cylindrical tube of cocus-wood, mounted
at each end with German silver ferules. Six finger-holes. Europe.
18th Century.
Length, 1 foot 5 inches.
2397. FIFE *in A flat*. Cylindrical tube of light wood, pierced
with 6 finger-holes. Germany. 18th Century. Maker, G. Welch.
Length, 1 foot 3 inches.

918. FIFE *in B flat*. Cylindrical tube of iron, with six finger-holes. Flat pitch. Europe. 18th Century.
Length, 12½ inches.

2647. FIFE *in B flat*. Cylindrical tube of light wood in one piece. Seven finger-holes in front, the lowest hole in a raised knob (D sharp). Bohemia. c. 1800.
Length, 1 foot 1¼ inches.

The true Fife has always retained the cylindrical bore of the older flutes, but the name has been erroneously applied to the small flutes in high B flat and E flat.

For description of instruments in Case 60 a, see Class II, Division I, Section B, page 136.

CLASS II. WIND INSTRUMENTS.

DIVISION I. WITHOUT A KEYBOARD.

SECTION B. REEDS.¹

(1) BEATING REEDS.

(a) SINGLE BEATING REEDS.

GALLERY 26. CASE 59.

1729. PIBGORN. The body composed of the shin-bone of a deer, mounted at either end with ox-horn. In the upper horn is concealed a small beating reed made from a straw stalk. Six finger-holes in front and one at the back. The lowest note G. Wales. 18th Century. Constructed after the primitive model.

Length, 1 foot 7 inches.

This instrument was popularly known as the *hornpipe*, and is supposed to have given its name to the rustic dance for which it supplied the music. Also called *cornicyll* and *cornepype*.

1849. CHALUMEAU *in F*. Cylindrical tube of wood, pierced in front with 7 holes, the lowest double. At the back one thumb-hole. Single beating reed. France. 17th Century. Constructed after an early model.

Length, 12 inches.

This instrument, of which little mention is made by musical writers of the Middle Ages, although at that time it must have been in common use amongst the peasants, must not be confounded with the *Schalmey* or a small *Hautbois* with a double reed, which takes its name, in the same way as the present instrument, from the Latin *calamus*—a reed. The Chalumeau was last used in the Orchestra by Gluck, in the early 18th Century.

- 1296.² DOUBLE CHALUMEAU. Two cylindrical tubes of wood, covered with leather and bound with brass, the mouthpiece in a single block and fitted with 2 beating reeds. The right-hand tube pierced with 3 finger-holes in front and 2 behind, the lower one regulating the pitch. The left-hand tube with 3 holes in front and one behind. The lowest notes D and G. Italy. 17th Century. Reproduction. Original in the Museo del Liceo Musicale, Bologna.

Length, 1 foot 6½ inches.

¹ See Preface to Wind Instruments, page 102.

² No. 1296. Reproduction obtained through the courtesy of Prof. Frederico Vellani, Secretary of the Museo del Liceo Musicale, Bologna.

2473. OCARINA. *High Soprano in C*. Similar to preceding, but pierced with 10 finger-holes.
Length, 5 inches.

(2). TRANSVERSE FLUTES.

FAMILY OF TRANSVERSE FLUTES.

WITHOUT KEYS.

CASE 61 a.

The following five instruments, Nos. 2577, 2578, 2579, 2580, 2626, form a family of Transverse Flutes similar to those used in the 16th Century. They are of cylindrical bore and without keys

- 2577.¹ TRANSVERSE FLUTE. *Bass in C*. Cylindrical tube of stained wood, made in 2 pieces and brass-mounted, pierced with 6 finger-holes in front, the 3d and 6th holes double, and 2 thumb-holes at the back, each double. Italy. 16th Century. Reproduction. Original in the Museo Civico, Verona.
Length, 3 feet 7 inches. Diameter of bore, 1 inch.
- 2578.¹ TRANSVERSE FLUTE. *Tenor in F*. Similar to preceding. Cylindrical tube of wood made in two pieces and brass mounted. Pierced in front with 6 finger-holes. Italy. 16th Century. Reproduction. Original in the Museo Civico, Verona.
Length, 3 feet 2½ inches.
- 2579.¹ TRANSVERSE FLUTE. *Alto in G*. Similar to preceding. Cylindrical tube of wood made in 2 pieces and brass mounted. Pierced in front with 6 finger-holes. Italy. 16th Century. Reproduction. Original in the Museo Civico, Verona.
Length, 3 feet.
- 2580.¹ TRANSVERSE FLUTE. *Soprano in C*. Similar to preceding. Cylindrical tube of wood made in 2 pieces and brass mounted. Pierced in front with 6 finger-holes. Italy. 16th Century. Reproduction. Original in the Museo Civico, Verona.
Length, 2 feet 3½ inches.
2626. TRANSVERSE FLUTE. *High Soprano in octave C*. Similar to the preceding but made in one piece. Reproduction. Italy. 16th Century.
Length, 1 foot 4 inches.

¹ Nos. 2577, 2578, 2579, 2580. Reproductions obtained through the courtesy of the Mayor of Verona.

FAMILY OF TRANSVERSE FLUTES.

WITH KEYS.

CASE 60.

These five instruments, Nos. 2038, 2030, 2031, 923 and 919, form a family or set of Transverse Flutes as used in the early part of the 19th Century, being furnished with keys.

2038. TRANSVERSE FLUTE. *Bass in C*. Inverted conical tube of light wood, ivory mounted, the head being turned by a brass elbow joint as in the previous specimen. Four of the ordinary finger-holes stopped by brass keys, also by a long key at the bottom of the instrument. France. Early 19th Century.

Length, 4 feet 1 inch.

2030. TRANSVERSE FLUTE. *Tenor in F*. Inverted conical tube of stained wood, the head bent back by a brass elbow joint in order to bring the finger-holes within easy reach of the player. Four metal keys. England. Early 19th Century.

Total length, 2 feet 10 inches.

2031. TRANSVERSE FLUTE. *Alto in A*. Inverted conical tube of light wood, mounted with silver and furnished with four silver keys. England. 19th Century. Makers, Clementi & Co., 1819.

Length, 2 feet 5½ inches.

The Alto Flute *in A* is sometimes called the *Flûte d'Amour*.

923. TRANSVERSE FLUTE. *Treble in C*. Inverted conical tube of light wood, mounted with ivory. Six holes in front, with 5 flat brass keys on knobs. This instrument is furnished with 3 additional pieces, two middle joints and one end joint, the latter having the C sharp and C natural. Germany. c. 1800. Stamped "E. F. Starck."

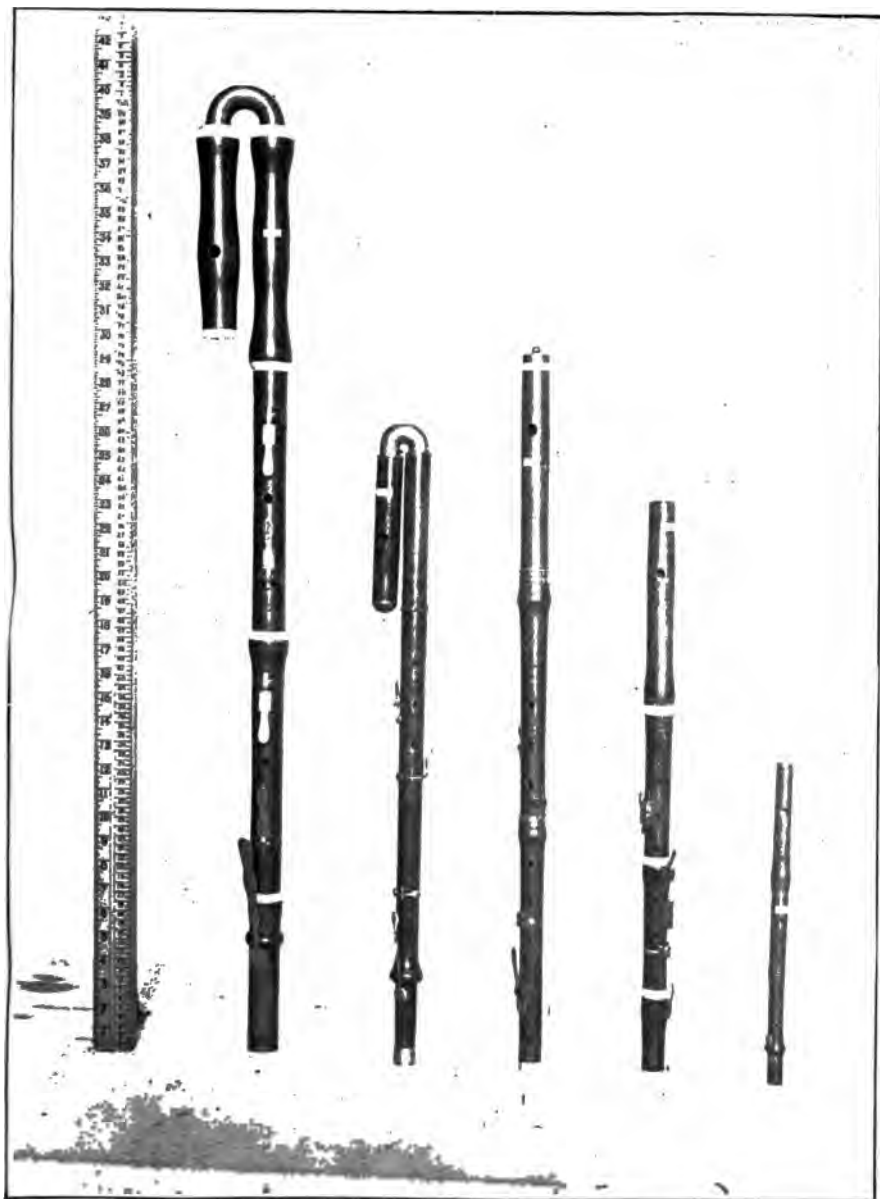
Length, 2 feet.

919. TRANSVERSE FLUTE. *Piccolo. High Soprano in octave C*. Inverted conical tube of stained wood, furnished at the bottom with 1 metal key. France. Early 19th Century.

Length, 13 inches.

920. TRANSVERSE FLUTE *in E flat*. Third Flute. Inverted conical tube of light wood, mounted with German silver, and having at the bottom one metal key. Europe. Early 19th Century.

Length, 1 foot 8 inches.



a. *b.* *c.* *d.* *e.*
 FAMILY OF TRANSVERSE FLUTES. With Keys.
 Page 128.

<p><i>a.</i> No. 2038. Bass in C.</p> <p><i>b.</i> No. 2030. Tenor in F.</p> <p><i>c.</i> No. 919. High Soprano in Octave C.</p>	<p><i>c.</i> No. 2031. Alto in A.</p> <p><i>d.</i> No. 923. Treble in C.</p>
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2279. CLARINET. *Tenor in F*. Cylindrical tube of wood with 14 rounded brass keys on knobs. Germany. 19th Century. Maker, Wernicke, Berlin.

Length, 2 feet 11 inches.

2126. CLARINET. *Alto in F*. Cylindrical tube of light wood, mounted with ivory. Six finger-holes in front, one at the back, the upper joint curved at an angle to bring the mouthpiece within easy reach of the player. Thirteen flat metal keys. Germany. 19th Century. Maker, Knochenhauer, 1856.

Length, 2 feet 9½ inches.

2559. CLARINET. *Soprano in C*. Cylindrical tube of brown wood, mounted with ivory, with 7 finger-holes in front and one behind, and fitted with 13 keys. England. 19th Century. Maker, Bilton. Four keys being added.

Length, 1 foot 11 inches.

This instrument formerly belonged to the Scots Guards.

898. CLARINET. *High Soprano in F*. Cylindrical tube of light wood, mounted with ivory. Seven finger-holes in front, one behind. Five flat brass keys. France. Early 19th Century. Maker, Boisselot Aîné, Montpellier.

Length, 1 foot 6¼ inches.

CASE 60 a.

For description of instruments in Case 59a, see Class II, Division I, Section B, page 138.

2459. CLARINET. *Bass in B flat*. Formed of two parallel tubes of brass, terminating in a bell of the same material and the mouthpiece placed on a curved brass crook. The smaller tube is cylindrical, the larger tube slightly tapering toward the bell. Twenty-three white metal keys on pillars, the holes covered by patent mechanism. Four keys placed at the back on the longer tube extend the compass of the instrument from E to low C, sounding G flat. Germany. 19th Century. Maker, Losschmidt. Olmutz.

Total length, 6 feet 1 inch.

1635. CLARINET. *Deep Bass in C*. Instrument similar to the preceding, but of dark wood, with 25 rounded brass keys on saddles. The finger-holes, except in one instance, being covered by patent mechanism. Italy. Early 19th Century.

Total length, 5 feet 5 inches.

2534. CLARINET. *Tenor in E flat*. Cylindrical tube of cocus-wood, mounted with German silver and fitted with 19 keys. One open finger-hole, the rest covered by patent mechanism. The wooden mouthpiece is placed on a curved metal crook. France. 19th Century. Maker, Buffet, Paris.
Length, 3 feet $2\frac{1}{2}$ inches.

2465. CLARINET. *Tenor in E flat*. Cylindrical tube of cocus-wood, mounted with brass and terminating in a small brass bell on an elbow curved upward. Twenty brass keys, the finger-holes being covered by patent mechanism. The metal mouthpiece is placed on a brass crook. Belgium. 19th Century. Maker, C. Mahillon, Brussels.
Length, 3 feet 3 inches.

1560. BASSET HORN *in F*. Tenor Clarinet. Cylindrical tube of stained wood, bent in an angular form similar to that of the previous specimen. Eight flat brass keys. The extension, which is obtained by curving the tube in a thick, short block, is diatonic. Dresden, Germany. c. 1800.
Length, 3 feet $1\frac{3}{4}$ inches.

The Basset Horn, or *Corno di Bassetto*, is the name given to the tenor clarinet in F when the lower part of the compass is extended by special key mechanism from the low E to low C, sounding A flat and F. It has been made in various shapes for the convenience of the player, and the additional notes are in some instruments diatonic, in others chromatic. Mozart and Mendelssohn have both written for this beautiful instrument, which is now but rarely used.

1387. BASSET HORN *in F*. Tenor Clarinet. Cylindrical tube of light wood, pierced with 6 holes in front and one behind, mounted with ivory. The instrument is turned at an angle in the middle by means of an ivory elbow-joint. Fifteen round brass keys. The extension, which is obtained by curving the tube within a narrow block and terminated by an oval bell, as in the previous instance, is only diatonic. Germany. Early 19th Century.
Length, 3 feet 3 inches.

2143. BASSET HORN *in F*. Tenor Clarinet. Straight, cylindrical tube of light wood, mounted with horn and brass. Six finger-holes in front. Eight flat keys of brass. At the bottom of the instrument the tube is curved upon itself in a shallow block of wood and terminated with an oval-shaped bell of brass, enabling the compass of the instrument to be extended from E to low C, sounding low F. The extension gives only the two diatonic tones D

and C. Germany. Late 18th Century. Maker, Simon Unglerth, Laybach.

Length, 3 feet 1 inch.

CASE 59 a.

2638. CLARINETTE D'AMOUR *in G*. Cylindrical tube of boxwood, terminating in a small round bell. Four copper keys in front, one at the back, giving the following notes:



The mouthpiece placed on a short metal tube. Reproduction. Original in the Conservatoire Royal de Musique, Brussels. Presented by M. Victor Charles Mahillon. France. 18th Century.

Length, 2 feet 7½ inches.

897. CLARINET *in A*. Cylindrical tube of light wood, mounted with ivory. Thirteen rounded brass keys. Belgium. 19th Century. Maker, Giboreau.

Length, 2 feet 3 inches.

899. CLARINET *in B flat*. Cylindrical tube of light wood, mounted with ivory and fitted with 5 brass keys. England. c. 1800. Makers, Graves & Co., Winchester, London.

Length, 2 feet 2 inches.

2349. CLARINET *in B flat*. Cylindrical tube of ebonite, pierced with 6 finger-holes in front and fitted with 13 silver keys on pillars. France. Late 19th Century. Maker, Gautrot Ainé, Paris.

Length, 2 feet 1½ inches.

900. CLARINET *in C*. Cylindrical tube of light wood, mounted with horn, with 7 finger-holes in front and 1 behind. Furnished with 4 flat brass keys. Sweden. Late 18th Century.

Length, 1 foot 11 inches.

1850. CLARINET *in D*. Cylindrical tube of light wood, mounted with horn. Seven holes in front, one behind. Eight flat

brass keys on knobs. Germany. 19th Century. Maker, Steigler, Munich.

Length, 1 foot 8 inches.

2535. CLARINET *in D*. Brass. Similar to preceding. Thirteen keys and 2 rings. England. 19th Century. Stamped "Koehler, London."

Length, 1 foot 8½ inches.

2558. CLARINET *in high E flat*. Cylindrical tube of light wood, mounted with ivory. Six finger-holes in front, one behind. Thirteen keys and two rings. England. 19th Century. Maker, Distin, London.

Length, 1 foot 6¾ inches.

1302. CLARINET *in high E flat*. Brass. A small cylindrical tube of brass terminating in a brass bell. Mounted with German silver. Seven finger-holes in front, bushed with brass, and one behind. Ten German silver keys on pillars. Austria. 19th Century. Maker, Sulz, E. S., Vienna.

Length, 1 foot 7 inches.

1422. CLARINET *in G*. Cylindrical tube of white metal, pierced with 8 holes in front, with 2 additional lower holes to regulate the pitch. One hole and a key (the speaker) at the back. France. 19th Century. Maker, C. H. Mathieu.

Length, 1 foot 4½ inches.

2174. CLARINET *in A*. Cylindrical tube of wood, pierced with 6 holes in front and one behind, and fitted with 10 white metal keys on pillars. Germany. 19th Century. Maker, Stengel.

Length, 1 foot 1¾ inches.

2165. CANE CLARINET. Body of light wood, horn-mounted, shaped as a walking-stick. The upper part of cylindrical bore and having a reed placed beneath the cap which forms the handle. Seven holes in front and one behind, also a double hole at the bottom for regulating the pitch of the lowest note. Nine round brass keys on pillars. France. 19th Century. Maker, Henri Pourcelle, Paris.

Length, 2 feet 10 inches.

2280. REED HORN. A conical tube of brass, painted black and twisted in serpentine form, furnished with a beating reed of brass. Germany. 19th Century.

Length of tube, 4 feet 8 inches.

1150. REED HORN. Constructed entirely of straw, plaited in a spiral form and fitted with a single beating reed similar to that of the Clarinet. Used at the celebration of the Impruneta, near Florence, Italy. 19th Century.

Width, when coiled, 2 feet.

1730. REED HORN *in A*. A short conical brass tube, slightly curved, furnished with a beating reed. France. 19th Century.

Length, 11¼ inches.

1137. REED HORN *in A*. A curved conical tube of brass, furnished with a beating reed. France. 19th Century.

Length, 1 foot 2¾ inches.

FAMILY OF SAXOPHONES.

The following four instruments, Nos. 2138, 2170, 2226, 2405, form a quartet of the Saxophone family, a deeper bass instrument in B flat being occasionally employed.

2138. SAXOPHONE. *Soprano in B flat*. Straight, conical brass tube terminating in a metal bell. Seventeen brass keys, the finger-holes superseded by patent mechanism. Wooden mouthpiece. France. 19th Century. Maker, A. Sax, Paris (Inventor).

Length of model, 2 feet 1 inch.

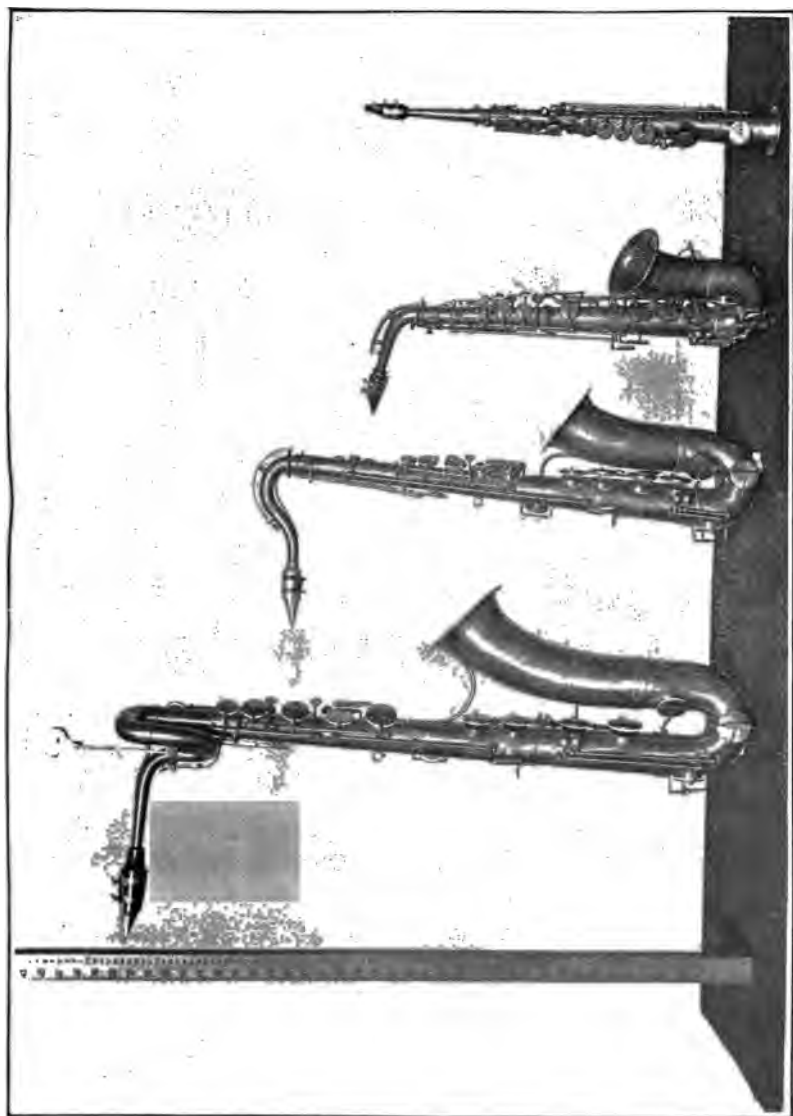
2170. SAXOPHONE. *Alto in E flat*. A conical tube of brass terminating in a small brass bell. Eighteen brass keys, the finger-holes superseded by patent mechanism. The upper part of the instrument bent in a short crook. Wooden mouthpiece. France. 19th Century. Maker, Le Comte.

Length of model, 2 feet.

2226. SAXOPHONE. *Tenor in B flat*. A conical tube of brass terminating in a small bell. The upper part of the instrument bent in a short crook. Eighteen brass keys, the finger-holes superseded by patent mechanism. White metal mouthpiece. France. 19th Century. Maker, Gautrot, Paris.

Length of model, 2 feet 6 inches.

2405. SAXOPHONE. *Bass in E flat*. A conical tube of brass terminating in a short bell. Eighteen round brass keys on pillars. The upper part of the instrument bent in a turn to bring the



a.

b.

c.

d.

FAMILY OF SAXOPHONES.

Page 140.

a. No. 2138. Soprano in B flat. *c.* No. 2226. Tenor in B flat.

mouthpiece within reach of the player. Mouthpiece of wood. France. 19th Century. Maker, Gautrot, Paris.

Length of model, 3 feet 2 inches.

The invention of the Saxophone was made by Adolphe Sax, of Paris, in 1846, but the application of a single beating reed to a conical tube was in use previous to this both in England and France. The ordinary bassoon, indeed, can be played with but little loss of tone by a clarinet or single beating reed instead of the double reed.

For description of No. 1857, see Class V, page 247.

The Double Reed Instruments are placed in Case 85a, at the right of doorway, south side of this gallery.

SECTION B (1)—*Continued.*

(b) DOUBLE BEATING REEDS.

CASE 85 a.

1672. REED PIPE *in F*. A conical tube of light wood, decorated with inlaid lead. Six finger-holes in the front, with 2 holes at the bottom for regulating the pitch. A thumb-hole at the back. France. Early 19th Century.

Length, 1 foot $3\frac{1}{2}$ inches.

The small reed pipe, or *Hautbois*, *in High F*, was often called *Musette*. To prevent confusion, that title is restricted in the present catalogue to the French Bagpipe called by the same name. In Germany this instrument was called the *Schalmey*, from which was derived "*Shawm*," the name given in England also to the alto, tenor and bass of the same family.

2151. REED PIPE *in F*. Bombard. Conical tube of black wood, mounted with ivory and decorated with incised lead-work. Six holes in front and one brass key at the bottom. Brittany. Early 19th Century.

Length, 1 foot 1 inch.

1349. REED PIPE *in F*. A conical tube of dark wood, having an ornamental knob, inlaid with pierced lead-work immediately above the short bell. Six holes in front, one behind. France. Early 19th Century.

Length, 1 foot $1\frac{1}{4}$ inches.

1631. REED PIPE *in G*. Short conical tube of turned wood, decorated with circular beading. Seven holes in front, one behind. Belgium. 19th Century.

Length, $8\frac{1}{2}$ inches.

1673. REED PIPE *in G*. Short conical tube of stained wood, the outside surface octagonal. Six finger-holes, 5 of them double, to enable the performer to obtain the sharps and flats by half-stopping. Italy. 18th Century.

Length, $9\frac{1}{4}$ inches.

896. REED PIPE *in high C*. Piffaro. Tube of wood encircled with incised lines. Seven holes in front, one at the back. The bell bound with brass. France. 18th Century.

Length, 7 inches.

937. REED PIPE *in F*. Floyera. A cylindrical tube of light wood, pierced with 7 holes in front and one behind. A supplemental hole at the bottom for regulating the pitch of the instrument. Greece. 19th Century.

Length, 1 foot 2 inches.

The *Floyera*, which is the Greek title for the Persian *Zourna*, resembles that instrument in having a regulating cap, which enables the player to silence the three upper holes without regard to the musical scale.

2281. REED PIPE *in F*. A conical tube of wood, terminating in a large wooden bell. Five holes. Germany. 18th Century.

Length, 1 foot $4\frac{1}{2}$ inches.

This instrument, which is of very rustic make, is used by the shepherds.

2166. REED PIPE *in F*. Conical tube of white metal, with 7 finger-holes in front and one behind; also a double hole above the bell to regulate the pitch. France. 19th Century. Maker, C. H. Mathieu.

Length, $12\frac{1}{4}$ inches.

2266. REED PIPE *in F*. Conical tube of stained wood, pierced with 7 holes in front and one behind, with 2 holes above the bell for regulating the pitch. Six brass keys on pillars. France. 19th Century. Maker, Thibouville Lamy, Paris.

Length, 1 foot 2 inches.

895. REED PIPE *in G*. Hautbois des Abruzzes. Conical tube of brown wood, with 7 holes in front, an extra hole at the bottom regulating the pitch. France. 18th Century.

Length, 1 foot $1\frac{1}{2}$ inches.

938. REED PIPE *in E flat*. Conical tube of red wood, mounted with white metal. In the front 7 holes, one hole behind. Two holes above the bell to regulate the pitch. Valencia, Spain. Early 19th Century.

Length, 1 foot $1\frac{1}{4}$ inches.

1523. REED PIPE *in G*. Conical tube of red wood, mounted with brass, having 8 holes in the front, the bottom hole pierced double, and one hole at the back. Two holes immediately above the bell to regulate the pitch. Europe. 19th Century.

Length, $11\frac{1}{4}$ inches.

2654. REED PIPE *in D*. Schalmey. Conical tube of black stained wood, mounted with ivory. Six finger-holes in front, the third hole double (for G and G sharp). Austria. Early 19th Century.

Length, 1 foot 6 inches.

1588. WHITHORN. A conical tube composed of willow bark, twisted when green and bound together with white thorn pricklers. The instrument has a double reed of soft willow bark. This rustic reed horn was constructed in England for the use of villagers in Oxfordshire during the Whit-Monday Hunt. England. 19th Century.

Length, 2 feet 1 inch.

891. HAUTBOIS DE POITOU *in C*. Conical tube of black wood, ivory mounted, with 7 holes in front, the 2 lower double, and 2 holes at the bottom to regulate the pitch. One hole at the back. The reed is covered by a cap and the instrument is sounded through a hole at the end. France. 18th Century.

Length, 1 foot 11 inches.

From the Collection of Count de Bricqueville.

1847. HAUTBOIS DE POITOU *in A*. A small conical tube of stained wood, pierced with 7 holes in front, one behind; 2 extra holes at the bottom to regulate the pitch. The double reed concealed beneath a wooden cap as in the Krumhorn. The instrument is played by means of an opening at the upper end of the cap. France. 19th Century.

Length, 1 foot $3\frac{1}{2}$ inches.

1671. HAUTBOIS DE POITOU *in A*. Short conical tube of dark wood, pierced with 6 holes in front and one hole behind. The reed covered by a cap tipped with ivory, and the instrument blown through a hole at the top. France. 18th Century.

Length, 1 foot 3 inches.

2150. SARRUSOPHONE. *Soprano in B flat*. Conical tube of brass, with 18 brass keys, the finger-holes covered by patent mechanism. France. 19th Century. Maker, Gautrot, Paris.

Length, 2 feet $3\frac{1}{2}$ inches.

This is the Soprano of a family of double-reed instruments, having a metal conical tube, invented by M. Sarrus, Band Master in the French Army, in 1856. The instrument most used is the contra bass in B flat, which takes the part of the stringed contra bass in the military band.

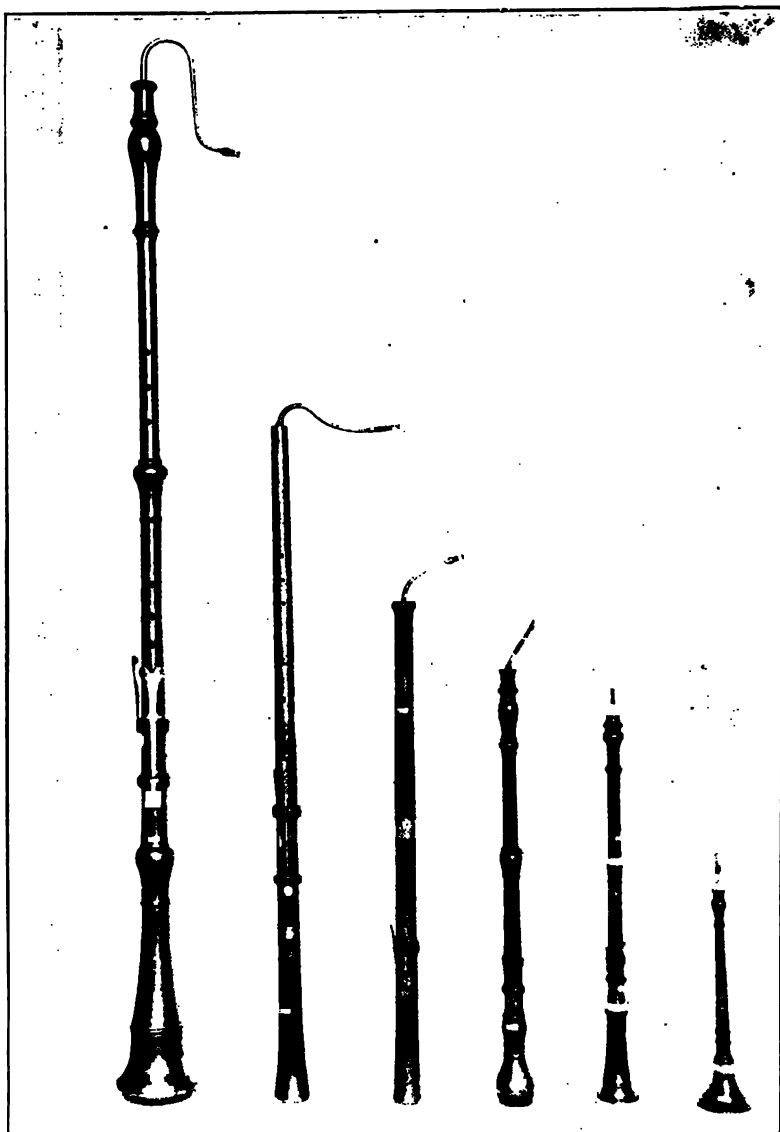
2350. OBOE *in C*. Conical tube of ebonite, with German silver mountings, fitted with 13 German silver keys and 2 rings. France. Late 19th Century. Maker, Gautrot Ainé, Paris.

Length, 1 foot 10 inches.

2466. OBOE *in C*. Conical tube of light wood, horn-mounted. Similar to preceding, but with additional shorter joint to sharpen the instrument. Three rounded brass keys, including, at the top, a primitive form of octave or speaker key, which, however, together with the G sharp key, seems to have been added at a later date, as the additional joint does not possess them. Italy. 18th Century. Maker, C. Lesti, Ancona.

Length, with the longer joint, 1 foot $9\frac{3}{4}$ inches. Length, with the shorter joint, 1 foot $9\frac{1}{2}$ inches.

1566. OBOE *in C*. Conical tube of light wood, mounted with ivory, and having 3 brass keys. Germany. Late 18th Century. Length, 2 feet.



a.

b.

c.

d.

e.

f.

FAMILY OF OBOES.

Page 145.

a. No. 2351. Contra Bass in F.

b. No. 2029. Bass in C.

c. No. 1135. Tenor in F.

d. No. 2041. Alto in A.

e. No. 894. Soprano in C.

f. No. 1848. High Soprano in F.

CASE 85.

FAMILY OF OBOES.

These six instruments, Nos. 2351, 2029, 1135, 2041, 894, 1848, form a family or set of Oboes. The set as here represented is not now in use, the tenor instrument being replaced by the *Cor Anglais*, and the bass and contra bass by the Bassoon. The Oboe is called in France *Hautbois*, or high wooden pipe, and was known in England as the *Hoboy* or *Hautboy*. In Germany it is called *Hoboe*.

2351. OBOE. *Contra Bass in F*. Long conical tube of stained wood. 6 finger-holes and 2 brass keys, the longer one with double touch-pieces. Above the bell 2 holes for regulating the pitch. France. 18th Century.
Length, 5 feet 11 inches.
2029. OBOE. *Bass in C*. Conical tube of black stained wood, brass mounted, with 6 finger-holes and 2 brass keys. 2 holes in the bell to regulate the pitch. England. 18th Century. Reproduction.
Length, 4 feet.
1135. OBOE. *Tenor in F*. Straight conical tube of black wood, with ivory mountings, and furnished with 2 brass keys. England. 18th Century. Maker, Cahusac Son.
Length, 2 feet $4\frac{1}{2}$ inches.
2041. OBOE. *Alto in A*. Conical tube of stained wood, with pear-shaped bell. 6 finger-holes, the third and fourth holes double. 2 brass keys, similar to the preceding. Germany. 18th Century. Maker, Poerschman.
Length, 2 feet 1 inch.
This instrument is known as the *Oboe d'Amour*.
894. OBOE. *Soprano in C*. Conical tube of black stained wood, mounted with ivory. Two brass keys, the longer one with double touch-pieces. France. 18th Century. Maker, Camus.
Length, 1 foot $10\frac{1}{2}$ inches.
From the Collection of the Count de Bricqueville.
1848. OBOE. *High Soprano in F*. A conical tube of dark stained wood, mounted with ivory. 6 finger-holes. France. 18th Century.
Length, 1 foot 1 inch.
887. COR ANGLAIS *in F*. Bent model. A conical tube of wood, ivory mounted and pierced with 6 holes, the third double,

and 2 holes at the bottom to regulate the pitch. 5 silver keys. The pear-shaped, contracted bell is decorated at the end with a carved circle of ivory, and the instrument is bent in the middle at an angle by means of a short elbow-joint. Austria. Late 18th Century. On the lower keys are engraved the initials "F. C. G.," surmounted by a crown.

Length, 2 feet 6 inches.

2040. COR ANGLAIS *in F*. Straight model. Conical tube of stained wood, with 6 finger-holes in front. Third hole double. Two flat brass keys, the long key with double touch-pieces. Pear-shaped bell, pierced with 2 small holes to regulate the pitch. Germany. 18th Century.

Length, 2 feet 7½ inches.

2494. COR ANGLAIS *in F*. Flat pitch. Curved model. Cylindrical tube of wood, covered with leather, the outside surface octagonal. The upper joint restored. Six finger-holes, the third and fourth holes double. Two flat brass keys, the long one with double touch-pieces. Open bell of wood, pierced with 2 small holes to regulate the pitch. Germany. Early 18th Century. Maker, C. Strisch.

Length, 2 feet 9½ inches.

- 2467.¹ COR ANGLAIS *in F*. Flat pitch. Curved model, with wide-open bell, similar to preceding. Italy. Early 18th Century. Reproduction. Original in the Museo del Liceo Musicale, Bologna.

Length, 2 feet 10 inches.

889. COR ANGLAIS *in F*. Curved model. Conical tube of wood, covered with leather and mounted with ivory. 13 metal keys and 2 rings. 6 finger-holes, the third hole double. The long key at the back of the instrument extends the compass to the lower B, sounding E. France. Early 19th Century.

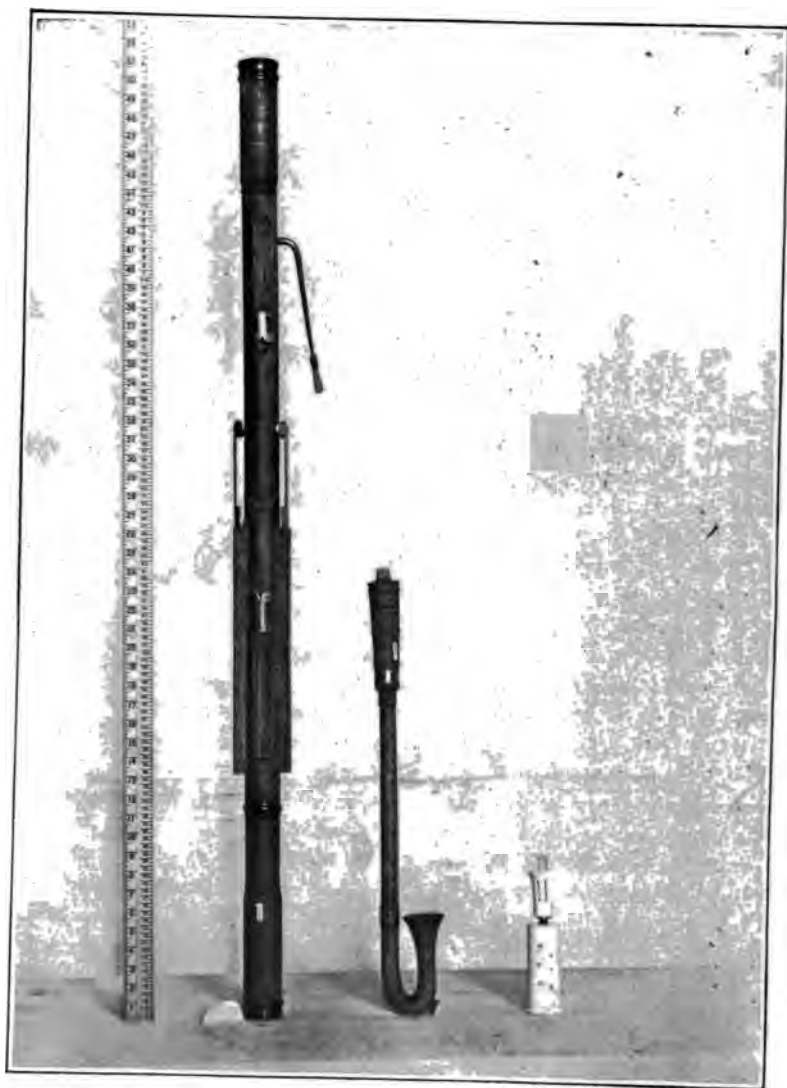
Length, 2 feet 6 inches.

From the Collection of the Count de Bricqueville.

888. COR ANGLAIS *in G*. Curved model. A conical tube of wood, mounted with horn and covered with leather. 6 finger-holes, 3 double. 2 brass keys, the longer with double touch-pieces. pear-shaped wooden bell. Italy. 18th Century. Maker, Grassi, Milan.

Length, 2 feet 5½ inches.

¹ No. 2467. Reproduction obtained through the courtesy of Prof. Federico Vellani, Secretary of the Museo del Liceo Musicale, Bologna.



a.

b.

c.

- a.* No. 2700. Sourdine.....page 147
b. No. 2702. Krumhorn in C..... " 150
c. No. 2701. Wurst Fagott..... " 149

CASE 84 a.

- 2700.¹ SOURDINE. *Contra Bass*. Cylindrical body of stained wood mounted with horn, pierced by two parallel tubes of small cylindrical bore, united at the lower end. Six finger-holes in front, one at the back; six brass keys with double touch-pieces. A short brass crook inserted into the front tube at the upper end, carries a double reed. When not in use the crook can be placed in a small cavity by removing the cap at the top of the instrument. Compass one octave and six notes, E to D. Austria. 16th Century. Reproduction. Original in the Kunsthistorischen Hofmuseum, Vienna.

Length of model, without crook, 4 feet $3\frac{1}{2}$ inches. Diameter, $2\frac{1}{4}$ inches.

1350. FAGOTTINO. *Piccolo in F*. A single block of stained wood, mounted with brass and pierced with 6 finger-holes, the third and fourth double. Two conical tubes, the bass tube terminating in a small bell, the reed attached to the other tube by a curved crook. One brass key. France. 17th Century.

Length of model, 11 inches.

1674. FAGOTTINO. *Piccolo in C*. Small block of wood, mounted with brass and pierced with 2 conical tubes. 6 finger-holes. The bass tube terminating in a brass bell, the reed attached to the other tube by a brass crook. France. 17th Century.

Length of model, 1 foot $4\frac{3}{4}$ inches.

2036. FAGOTTO. *Tenor in E flat*. Body composed of a single block of wood, brass bound, pierced with 2 conical tubes. In front 7 holes, the bottom one closed with a brass key, having double touch-pieces and working under a brass cover. At the back 2 thumb-holes. The bass tube terminating in a short wooden bell, the reed attached to the instrument by a brass crook. Germany. 17th Century.

Length of model, 2 feet 9 inches.

The Fagotto differs from the Oboe by having the tube bent upward at a sharp angle at the base, thus reducing the size of the instrument. The wooden tubes running parallel to each other were supposed to suggest a bundle of sticks or fagots, hence the Italian name, *Fagotto*. This improvement on the straight tube of the older Pommers and Bass Oboes is supposed to have been

¹ No. 2700. Reproduction procured through the courtesy of Dr. Julius Ritter von Schlosser and Dr. Julius Hermann of the Kunsthistorischen Hofmuseum, Vienna.

introduced at the end of the 16th Century. The only instrument of this kind which was much in use in the English and French orchestras was the Bass Fagotto, generally known as the Bassoon or Bason.

883. **BASSOON** *in C*. Two conical tubes of light wood, fitted into a butt-joint, brass-mounted. Six finger-holes and one flat brass key, with double touch-pieces in front. Four holes at the back. Two keys missing. Instead of the usual wooden termination, this instrument is finished with a short tube and ball of brass, forming a pear-shaped bell. Owing to this it might be termed a *Bassoon d'Amour*. France. 18th Century. The lowest front key bearing the initials "I. I. R," that is, Riedloker.

Length of model, 3 feet 9½ inches.

885. **BASSOON** *in C*. Two conical tubes of stained wood inserted into a block of wood, mounted with ornamental mounts of brass, engraved and gilt. Six finger-holes in front and 2 keys. At the back 2 finger-holes and 4 brass keys. Also at the top of the tenor joint 1 long brass key. The keys on this instrument are of peculiar construction, being made in each case of a long metal shaft, turned on a central spindle, bearing at one end a short lever touch-piece and at the other a smaller lever carrying the key. An extra tenor joint for flattening the pitch. France. 19th Century. Invented by C. H. Feliz, Paris.

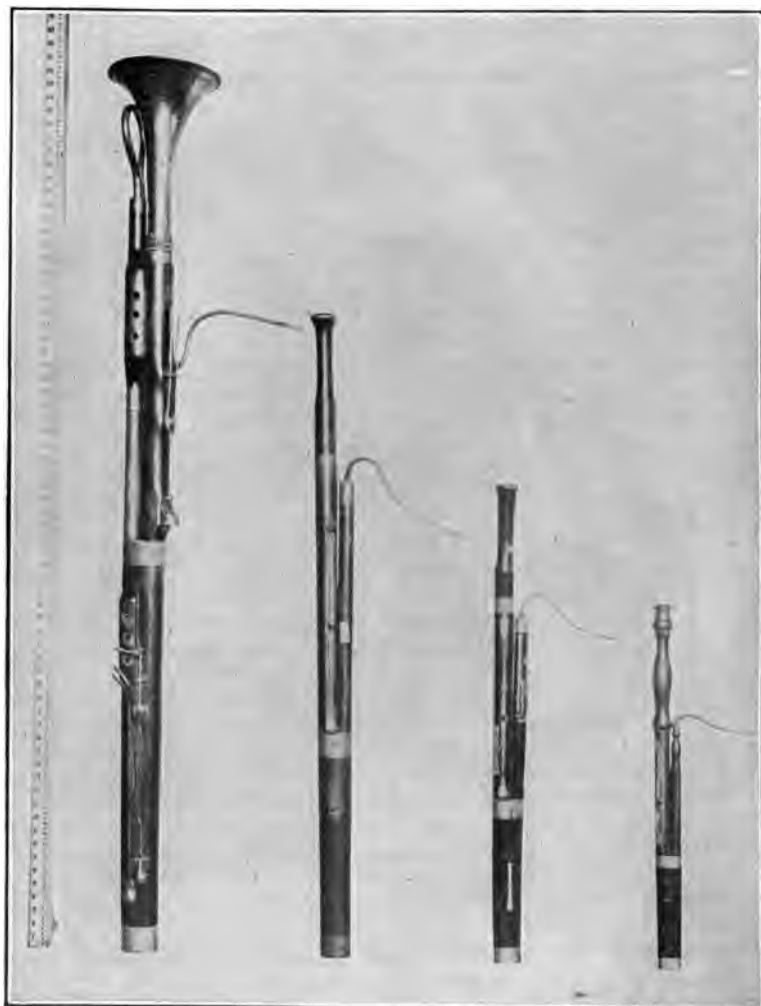
Length of model, 4 feet 2½ inches.

1675. **BASSOON** *in B flat*. Two conical tubes of stained wood, fitted into a butt-joint, mounted with brass, the longer tube terminating in a brass bell. On the front 12 brass keys. At the back 1 thumb-hole and 5 brass keys; also on the tenor joint 2 brass keys. The keys have rounded caps, and the finger-holes, with one exception, are covered with patent mechanism. France. 19th Century. Maker, Gallander, Paris.

Length of model, 5 feet 1 inch.

881. **BASSOON**. Body formed of painted wood, carved to represent a dragon with gilt head and scale-covered body. 6 finger-holes. The instrument is blown by a short tube placed at the back. It is quite hollow and appears to have been constructed for grotesque effect in church processions. Europe. 19th Century.

Length of model, 4 feet 7½ inches.



a.

b.

c.

d.

FAMILY OF BASSOONS.

Page 149.

a. No. 1736. Contra Bass in C.
b. No. 884. Bassoon in C.

c. No. 2202. Tenor in F.
d. No. 2037. Octave Bassoon in C.

CASE 84.

FAMILY OF BASSOONS.

These four instruments, Nos. 1736, 884, 2202, 2037, form a set or family of Fagotti or Bassoons. Only the bass and contra bass are at present in general use in the orchestra.

1736. DOUBLE BASSOON. *Contra Bass in C*. Fagotto. Two conical tubes of dark wood, with brass mountings, furnished with a long brass crook of two bends, to which is attached the reed, 7 finger-holes and 7 brass keys. The instrument terminates in a bell of brass. Italy. Early 19th Century.

Length of model, 5 feet $6\frac{1}{2}$ inches.

884. BASSOON *in C*. Fagotto. Two long conical tubes of stained wood, fitted into a butt-joint, brass mounted, 6 finger-holes and 2 keys in front, 2 thumb-holes and 2 keys at the back. England. 18th Century. Maker, Meacham.

Length of model, 4 feet.

2202. BASSOON. *Tenor in F*. Fagotto. Two conical tubes of stained wood, brass-mounted, fitted into a butt-joint. Six finger-holes, 3 flat brass keys at the back. Also 3 brass keys in the upper part of the tenor, or top, joint. England. c. 1800.

Length of model, 3 feet.

This instrument is sometimes called the *Tenoroon*.

2037. OCTAVE BASSOON *in C*. Fagottino. Instrument formed of 2 conical tubes of stained wood, fitted into a brass-mounted block of wood, forming the butt-joint. Seven finger-holes in front, the lowest one closed by a flat brass key. Two thumb-holes at the back, two flat brass keys. France. 18th Century.

Length of model, 2 feet $2\frac{1}{2}$ inches.

- 2701.¹ WURST FAGOTT. Rackett or Cervelas. Compass one octave and four notes, D to A. A short cylindrical body of ivory pierced with nine parallel tubes of small cylindrical bore united alternately at the upper and lower ends, thus forming a continuous passage about three feet and six inches in length. The finger-holes pierced at various angles communicate with eight outer

¹ No. 2701. Reproduction procured through the courtesy of Dr. Julius Ritter von Schlosser and Dr. Julius Hermann of the Kunsthistorischen Hofmuseum, Vienna.

tubes. The double reed is protected by a "pirouette" or cap of ivory, but is vibrated between the lips. Austria. 16th Century. Reproduction. Original in the Kunsthistorischen Hofmuseum, Vienna.

Height of model, $4\frac{3}{4}$ inches. Diameter, 2 inches.

The Wurst Fagott is also known as the *Sausage Bassoon*, owing to the fact that the tubes are cylindrical; the pitch, in spite of the smallness of the instrument, is as deep as that of the bassoon.

1563. WURST FAGOTT. Cervelas or Rackett. Cylinder of wood, covered with stamped leather. Five finger-holes and 3 flat brass keys on knobs. The exterior of this instrument appears to have been reconstructed after an ancient model; it is unplayable, the interior being hollow. Germany.

Height of model, 8 inches. Diameter, 4 inches.

1131. TOURNEBOUT. A round tube of wood with cylindrical bore, covered with stamped leather. Six finger-holes in front, the lower hole double, and 2 holes in the bend of the instrument for regulating the pitch. At the upper end a wooden cap, into which is placed a double beating reed. France. 18th Century.

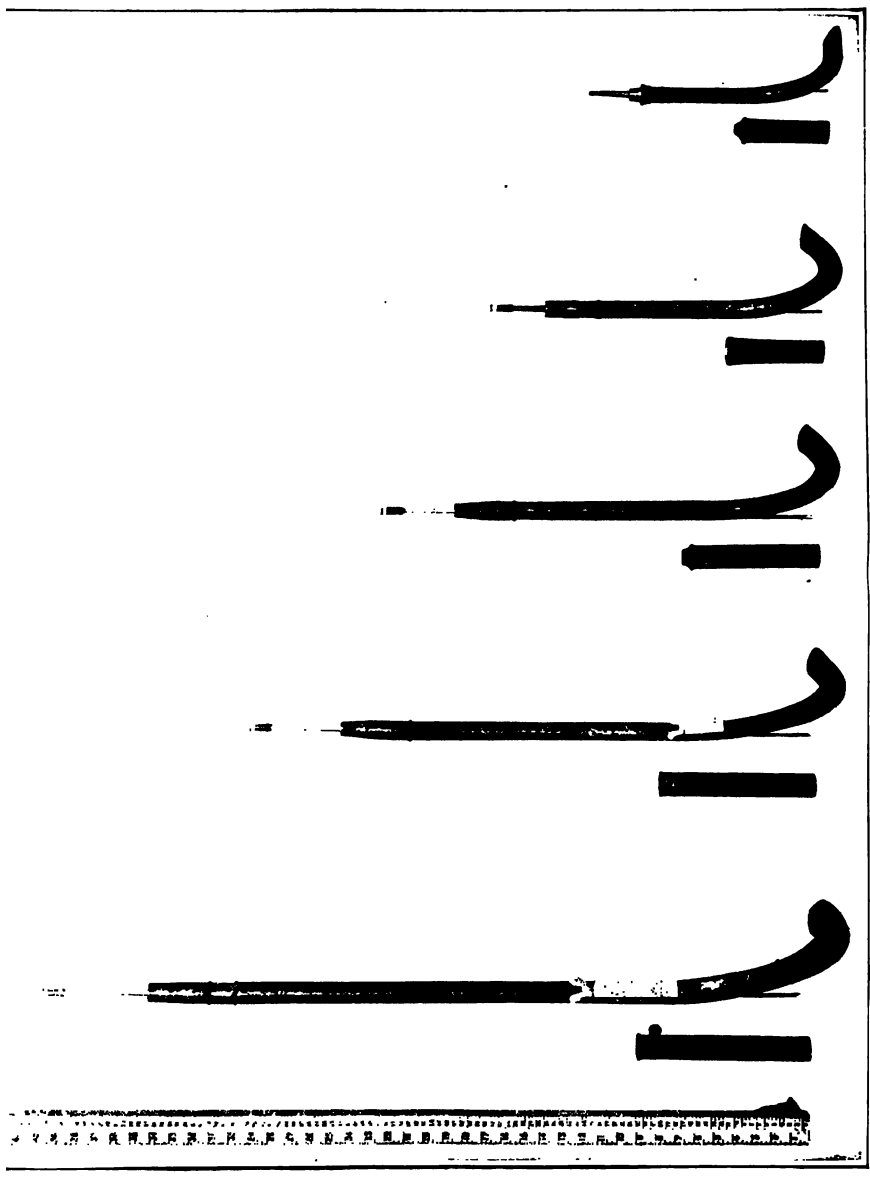
Total length, 3 feet $7\frac{1}{2}$ inches.

- 2702.¹ KRUMHORN *in C*. Body of stained wood pierced with a small cylindrical tube, a double reed concealed beneath a wooden cap. A contracted bell is placed on a detachable bend of wood at the bottom of the main tube, which brings it parallel with the body of the instrument. Seven finger-holes in front, the lowest double for right- or left-handed player. One hole for thumb at the back. Austria. 16th Century. Reproduction. Original in the Kunsthistorischen Hofmuseum, Vienna.

Length, 2 feet $\frac{1}{2}$ inch.

This instrument has been described as a *Courtaud* (see Mahillon, Vol. 2, page 245), but does not agree with the design and descriptions of that instrument given by Prætorius and Mersenne. It is evidently a Krumhorn, with a simplification in the method of boring.

¹ No. 2702. Reproduction procured through the courtesy of Dr. Julius Ritter von Schlosser and Dr. Julius Hermann of the Kunsthistorischen Hofmuseum, Vienna.



FAMILY OF KRUMPHORNS.

Page 1st.

N. 2574 High Soprano in C. 1 C. No. 2574. Alto in D. 1 C. No. 2576. Bass in D.

FAMILY OF KRUMHORNS.

The five following instruments, Nos. 2572, 2573, 2574, 2575, 2576, form a set or family of *Krumhorns* or *Cromornes*, much used in the instrumental music of the 16th and 17th Centuries, and continuing to be so used in the music of the Grande Ecurie of the King of France till about 1730. Owing to the double reed being placed on a cylindrical tube, the instruments sound an octave lower than if they had the conical tube of the oboes.

- 2572.¹ KRUMHORN. *High Soprano in C*. A round tube of wood with cylindrical bore, curved upward at the lower end and covered with leather. The instrument is sounded by a double-beating reed placed under a cap. Seven finger-holes in front; at the bottom an extra hole to regulate the pitch. Italy. 16th Century. Reproduction. Original in the Museo Civico, Verona.

Length, 1 foot 6½ inches.

- 2573.¹ KRUMHORN. *Soprano in G*. Similar to preceding. Italy. Reproduction. Original in the Museo Civico, Verona.

Length, 2 feet 2½ inches.

2574. KRUMHORN. *Alto in D*. Similar to preceding. Seven finger-holes in front, also two holes in the lower part covered by brass sliders and giving when opened the notes E and F sharp. Reproduction from Prætorius.

Length, 2 feet 9 inches.

2575. KRUMHORN. *Tenor in G*. Similar to preceding, but with one brass key for the lowest note. Reproduction from Prætorius.

Length, 3 feet 5 inches.

2576. KRUMHORN. *Bass in D*. Similar to preceding, but with two brass keys for the lower notes. Reproduction from Prætorius.

Length, 4 feet 6 inches.

- 1647, 1648. PAIR OF REED PIPES. Auloi. Cylindrical tubes of dark wood, pierced with 5 oval holes in front and one at the back. These instruments are played with double reeds. Lowest note F. Ancient Greece. Reproduction of a pair of pipes found at Athens. Originals in the British Museum, London.

Length of 1647, 1 foot 1½ inches. Length of 1648, 12½ inches.

These pipes (Nos. 1647, 1648) form a set of *Tibiae impares*, and were played by the same performer, the longer, or bass pipe, being held in the left hand,

¹ Nos. 2572, 2573. Reproductions procured through the courtesy of the Mayor of Verona.

and the two reeds in his mouth. The original instruments, of which these are reproductions, were found in a tomb near Athens and are now in the British Museum. They are somewhat warped by age, dating, probably, from the 4th Century B. C., but in the longer one a remnant of the reed still remains.

1738. TIBIA. Monaulos. Single pipe as used in ancient Rome. Cylindrical tube of large bore, composed of pieces of bone, united by cement. Four finger-holes. The instrument is sounded by a double reed inserted into a socket at the upper end of the tube. Found in the Tiber. Ancient Rome.

Length, $9\frac{1}{2}$ inches.

1797. TIBIA. Plagiaulos. Similar to the preceding, but the reed inserted into a carved socket at the side of the instrument, which required the player to hold it almost transversely; hence the name "Crossway Pipe" (Plagiaulos). The upper end is closed. Found in the Tiber. Ancient Rome.

Length, 1 foot 2 inches.

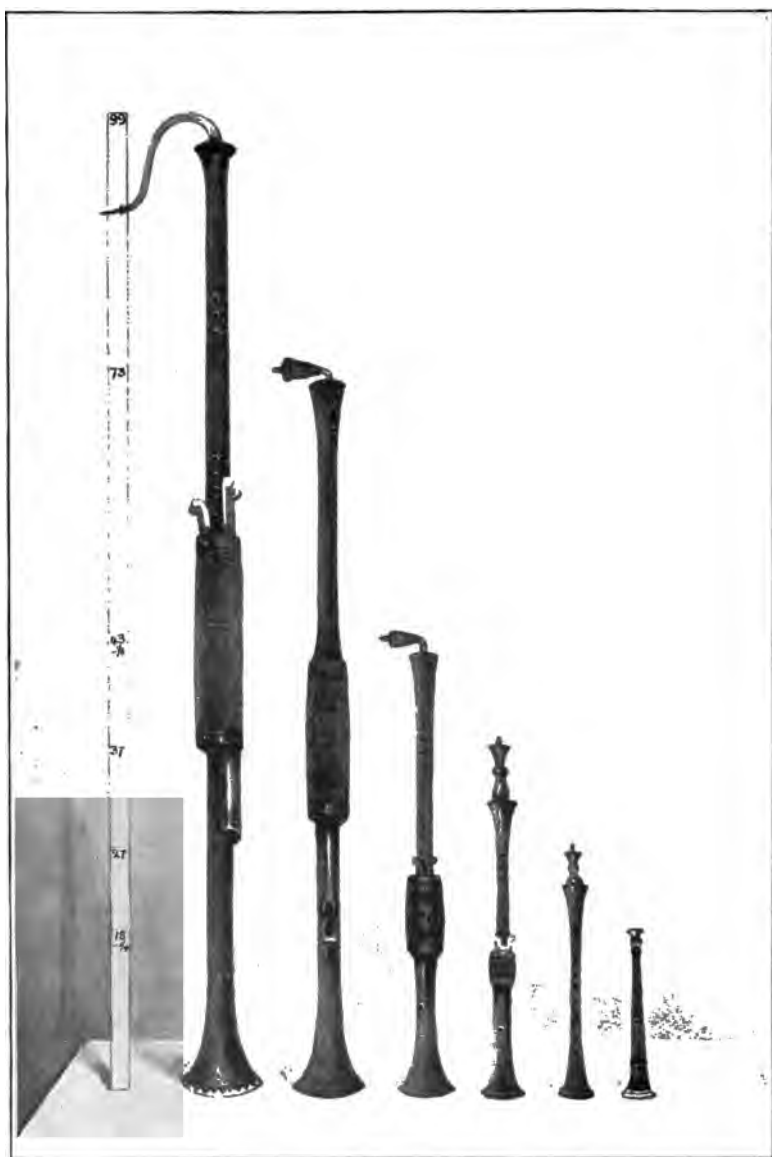
In some restorations of Roman statues this form of Tibia is wrongly changed into a transverse flute.

931. TIBIA. Portions of a Roman reed pipe. Cylindrical tube composed of short lengths of bone decorated with incised circles. Found in the Tiber. Ancient Rome.

2713. TIBIA. Tube of ivory with cylindrical bore and eleven finger-holes, and sounded by a double reed. Over the finger-holes are fitted sliding shutters formed of metal tubing, which serve to cut off at any desired point communication with the air column within the tube. This device may have been used by the performer for placing the instrument in the required mode. Italy. Reproduction. Original excavated at Pompeii in 1876, now in the Museum at Naples.

Length, 1 foot $8\frac{3}{4}$ inches.

Reed pipes of this kind were often played in pairs, and were popular in Ancient Rome. When both instruments were of equal length they were known as "*Tibiae pares*"; when of unequal length, as in the case of Nos. 1647, 1648, they were called "*Tibiae impares*." With these pipes was employed the *capistrum*, illustrations of which may be found on the pottery and wall-paintings of that period; this is a stock, into which the reeds are fitted, held to the mouth by means of a strap or bandage fastened at the back of the neck.



a. b. c. d. e. f.

FAMILY OF POMMERS.

<i>a.</i> No. 2538.	Contra Bass in FF.....	page 153
<i>b.</i> No. 2624.	Bass in deep C.....	" 153
<i>c.</i> No. 2625.	Tenor in C.....	" 153
<i>d.</i> No. 1799.	Alto in F.....	" 153
<i>e.</i> No. 2463.	Treble in C.....	" 153
<i>f.</i> No. 890.	High Treble in F.....	" 154

OVER CASE 84 a.

FAMILY OF POMMERS.

The six following instruments, Nos. 2538, 2624, 2625, 1799, 2468, 890, form a complete set of Pommers, the predecessors of the oboes and bassoons of the present day. The treble instruments were called *Schalmey*, whence the English word "*Shawm*." The bass instruments were called "*Bombards*."

- 2538.¹ GROSS DOPPEL QUINT POMMER or BOMBAR-DONE. *Contra Bass in FF*. A conical tube of stained wood, mounted with brass. Six holes in front, the reed placed in a long brass crook to bring it within reach of the performer. Two metal keys in front, with double touch-pieces and 2 metal keys at the back, all working within a pierced cover of wood, extended, in the case of the lower keys, by a brass shield, enabling the compass of the instrument to be continued downward from C to FF. Austria. 16th Century. Reproduction. Original in the Städtisches Museum Carolina Augusteum, Salzburg, Austria.

Length, 10 feet.

- 2624.² POMMER. *Bass in deep C*. A conical tube of wood, similar to preceding, and furnished with a brass crook, 2 metal keys in front and 2 at the back, working within a pierced cover of wood. Reproduction. Original at Middelburg Museum, Holland.

Length, 6 feet 3 inches.

- 2625.² POMMER. *Tenor in C*. Similar to the preceding, but with only one brass key working beneath a cover. Reproduction. Original at Middelburg Museum, Holland.

Length, 3 feet 8 inches.

1799. POMMER. *Alto in F*. Similar to the preceding, with one metal key. Reproduction from Prætorius.

Length, 2 feet 11½ inches.

2468. POMMER. *Treble in C*. *Schalmey*. Conical tube of wood pierced with 7 holes in front, the lowest double; also 3 additional holes for regulating the pitch. Reproduction from Prætorius.

Length, 2 feet 3 inches.

¹ No. 2538. Reproduction procured through the courtesy of Dr. Petter, Director of the Städtisches Museum Carolina Augusteum at Salzburg.

² Nos. 2624, 2625. Reproductions procured through the courtesy of the municipal authorities, and of Mr. W. O. Swaving, Keeper of the Archives, Middelburg, Zeeland, Holland.

890. POMMER. *High Treble in F.* Schalmey. Conical tube of brown wood, mounted with ivory and brass, with 7 holes in front, the 2 lower double. In the bottom of the instrument 2 holes for regulating the pitch. France. c. 1700.

Length, 1 foot 6 inches.

From the Collection of the Count de Bricqueville.

SECTION B (1)—*Continued.*

(c) SINGLE AND DOUBLE BEATING REEDS

WITH AIR RESERVOIR.

CASE 83 a.

2086. BAGPIPE. Bock. Bag of natural skin, fitted with a wooden chanter of cylindrical bore, bound with brass and having 6 holes in front and one behind, fitted to a horn, terminating in a large brass bell, curved upon the pipe by means of a brass elbow piece. One drone, bound with brass, terminating in a curved horn and brass bell, similar to that of the chanter. Chanter and drone fitted with single beating reeds. Germany. 18th Century.

Total length of chanter, 2 feet 5 inches. Total length of drone, 5 feet 4 inches.

1629. BAGPIPE. Zampogna. Goat-skin bag with pipes of dark red wood, furnished with a large barrel-shaped stock, into which are fitted 4 pipes; 2 conical chanters, terminating in large bells, having 4 holes each. In the shorter chanter the lowest hole double; in the longer, the bottom hole closed by a brass key, closing under a wooden cover. Two cylindrical drones with tuning slides. Both chanters and drones having double beating reeds. Italy. 19th Century.

Length of longer chanter, 4 feet. Longer drone, 1 foot 9½ inches.

1568. BAGPIPE. Zampogna. Goat-skin bag with pipes of brown wood. Similar to preceding, but smaller. Italy. 19th Century.

Length of chanter, 1 foot 9¼ inches. Longest drone, 11 inches.

1521. BAGPIPE. Zampogna. Similar to preceding. Bag of prepared leather, pipes of light brown wood. Italy. 19th Century.

Length of longer chanter, 2 feet 5 inches. Shorter, 1 foot 8½ inches.



No. 2086.

Bagpipe. Bock. Germany.

Page 154.



Case 83.
Bag pipes.
Page 155.

2510. PIFFARO PASTORALE. A reed pipe generally played with the Zampogna. Italy. 19th Century.
Length, 1 foot 2 inches.
862. BAGPIPE. Miniature toy. Small model of the Italian Zampogna. France. 19th Century.
Length of chanter, 8 inches.

CASE 83.

867. BAGPIPE. Cornemeuse. Bag covered with silk tapestry. The chanter, drone, stock and mouthpiece in carved ivory. France. 18th Century.
Length of chanter, 10 inches. Length of drone, 7 inches.
861. BAGPIPE. Cornemeuse. Bag covered with red velvet case, decorated with gold braid. A flat stock, fitted with a conical chanter of black wood, with 7 holes in front, the lower double and one behind. Two large holes at the bottom for regulating the pitch and parallel with it a short drone. One longer drone, fitted in a separate stock, with tuning slide. Double beating reeds in the chanter and single in the drones. France. 19th Century.
Length of chanter, 1 foot 4 inches. Longest drone, 2 feet 5 inches.
864. BAGPIPE. Cornemeuse. Bag covered with green velvet. A stock, carved with representation of 2 grotesque heads, placed side by side, the larger one fitted with a conical chanter, having 7 holes in front and one behind; the smaller head a short cylindrical drone, mounted with ivory. Double beating reeds in the drone, single in the chanter. No long drone. France. 18th Century.
Length of chanter, 13 inches. Short drone, 10 inches.
865. BAGPIPE. Cornemeuse. Bag covered with silk tapestry and bordered with gold and silver lace. Stock in ivory, containing a chanter, with carved bell of the same material, having 6 holes in front and one behind, and a lower hole stopped by a silver key on pillars. Parallel with it a short ivory drone. Chanter with double beating reed, drone single. The mouthpiece also of ivory. Upon the stock a small carved ivory plaque, with figures in relief. France. 18th Century.
Length of chanter, 10 inches. Length of drone, 7 inches.

2042. BAGPIPE. Musette. Bag covered with figured silk and fitted with a stock having conical chanter of light wood, with 7 holes, the lower one double, provided with 4 flat brass keys in front and 3 inlaid keys behind. The instrument also has the barrel-shaped form of drone peculiar to the Musette, the interior pierced with 4 small cylindrical tubes, one recurved, fitted with double beating reeds. The length of tube and also the pitch of the note being regulated by 5 ivory sliders, running in grooves on the outside. The wind is furnished by small bellows. France. 18th Century.

Length of chanter, $9\frac{1}{2}$ inches. Drone barrel, $5\frac{1}{2}$ inches.

866. BAGPIPE. Cornemeuse. Bag of natural goat-skin covered with hair. Carved stock, representing the head of a goat, inlaid with ivory and having a conical chanter, with 7 holes in front, the lower one double, and one hole behind; also a large hole at the bottom for regulating the pitch; parallel with it, a cylindrical drone with tuning slide. Also a cylindrical drone in a separate stock. The drones and chanter artistically mounted with ivory. Double beating reed in the chanter, single in the drones. The bag is inflated by a small pair of bellows. France. 18th Century.

Length of chanter, 1 foot 5 inches. Longest drone, 2 feet 4 inches.

857. BAGPIPE. Cornemeuse. Bag covered with green velvet. Painted, inlaid box-shaped stock, containing a conical chanter, pierced with 7 holes in front and one behind, with the usual double hole at the bottom for regulating the pitch, and parallel with it a short cylindrical drone; between them a very short cylindrical drone. On a separate stock a long cylindrical drone; the 3 drones and chanter mounted with ivory. A double beating reed in the chanter, single in the drones. The bag inflated by a small pair of bellows. France. 19th Century. Maker, Bechonnet, Effiat, Puy de Dôme.

Length of chanter, 13 inches. Drone, 1 foot 5 inches.

856. BAGPIPE. Cornemeuse. Bag covered with red velvet. Flat stock, having a curved conical chanter, pierced with 7 holes in front, one behind, and 2 small holes at the bottom. One short conical drone; also a long conical drone, placed in a separate stock. A double beating reed in the chanter, and probably single beating reeds in the drones, but the instrument is not entirely in its original condition. The bag is inflated by a small pair of bellows. France. 18th Century.

Length of chanter, $13\frac{1}{2}$ inches; drone, 1 foot 7 inches.

2730. BAGPIPE. Biniou. Bag of leather. A cylindrical chanter with 7 holes, and a drone. France. 19th Century.
Length of chanter, $5\frac{1}{2}$ inches. Length of drone, $16\frac{1}{2}$ inches.
This is a popular instrument among the French peasantry and is often referred to as the *Brittany Bagpipe*.

CASE 82 a.

343. BAGPIPE. Bag of brown skin, the portions formerly covering the legs plugged with wooden ornaments. 2 cylindrical chanters, placed side by side in a large disc-shaped block, each having five holes and terminating in 2 small horns, decorated with green tassels. Turkey. 19th Century.
Length of chanters, 7 inches.

318. BAGPIPE. Walnica. Bag of natural sheep-skin. Two chanters of reed, placed side by side in one stock, having 3 and 6 holes, respectively, their ends fitted into curved horn. The chanters and horn are bound with brass-engraved ferules, decorated with colored stones. Russia. 19th Century.
Length of chanters, 1 foot 5 inches.

1293. BAGPIPE. Bag of sheep-skin. Two cylindrical chanters of reed, placed side by side in the same stock, having 5 holes in each, and ends fitted into carved ox-horn. Single beating reeds. Greece. 10th Century.
Length of chanters, 10 inches.

855. BAGPIPE. Bag of sheep-skin. Two cylindrical chanters, placed side by side and formed from one piece of wood, each pierced with 5 holes. Single beating reeds. Greece. 19th Century.
Length of chanters, not including the portion within the stock, 8 inches.

860. BAGPIPE. A brown leather bag furnished with a flat stock, into which is fitted a long conical chanter with 7 holes in front, the bottom hole double, and one behind; also 2 holes for regulating the pitch of the lowest note. Parallel with it, in the same stock, a shorter, cylindrically bored drone. In a separate stock a long drone of cylindrical bore. Both the drones fitted with tuning slides. The drones are of light yellow wood, the chanters of walnut, decorated with bands of metal work. The chanter has a double beating reed, the drones single. Slavonia. 19th Century.
Length of chanter, 1 foot 10 inches. Longest drone, 3 feet 5 inches.

859. BAGPIPE. Musette du Nivernais. Similar to preceding, but smaller. France. 19th Century.

Length of chanter, 1 foot 3 inches. Length of drone, 2 feet 6 inches.

2513. BAGPIPE. Bag formed of natural deer-skin, two cylindrical chanters of reed, arranged side by side in the same stock, having 4 holes and one hole, respectively, the ends fitted into a carved ox-horn. Single beating reeds. Malta. 19th Century.
Length of chanters, including horn, 13 inches.

CASE 82.

1294. NORTHUMBRIAN BAGPIPE. Ancient form, without keys. A bag of prepared leather, covered with tan-colored corduroy and fitted with a small cylindrical chanter of black wood, having 7 holes in front and one behind, and a small barrel, holding 3 drones with tuning slides. The chanter and drones mounted with ivory. The bag is inflated from the lips by a long mouth-piece. The chanter has double beating reeds, the drones single beating reeds. England. 18th Century.

Length of chanter, 6½ inches. Longest drone, 11½ inches.

1512. NORTHUMBRIAN BAGPIPE. Modern form, with keys. Bag of prepared leather, covered with blue velvet and furnished with a cylindrical chanter, having 7 holes in front and one behind, and fitted with 9 flat brass keys on knobs. The end of the chanter completely stopped by means of an ivory cap. A small barrel, containing 4 drones with tuning slides, and mounted with ivory and brass. The bag is inflated by a small pair of bellows. Double beating reeds in the chanter, single reeds in the drone. England. Early 19th Century.

Length of chanter, 10½ inches. Length of drone, 13 inches.

The ancient Northumbrian bagpipes were made without keys. About the year 1800 John Peacock, a noted player, added the first four keys to the chanter to increase the scale. This number was gradually increased by other players, until sometimes there are as many as 18 keys on the modern Northumbrian bagpipe.

1514. SCOTCH LOWLAND BAGPIPE. Prepared leather bag, covered with plaid cloth and furnished with a conical black wood chanter, having 7 holes in front and one behind; also 2 holes at the lower end for determining the pitch, and a barrel-shaped stock with three cylindrical drones, furnished with tuning slides. The

drones and chanter mounted with ivory. The bag inflated by means of bellows placed under the arm. A double beating reed in the chanter, single beating reeds in the drones. Scotland. 19th Century.

Length of chanter, 13 inches. Longest drone, 1 foot 10½ inches.

863. HIGHLAND BAGPIPE. Bag of prepared leather covered with tarletan, fitted with a conical chanter of black wood, having 7 holes in front and one behind, and 3 drones mounted in separate stocks, with tuning slides. The drones and chanter decorated with ivory whorls. The 3 drones are kept in position by means of a ribbon passing from one to the other. A double beating reed in the chanter and single beating reeds in the drones. Scotland. 19th Century. •

Length of chanter, 13 inches. Length of longest drone, 2 feet 8 inches.

2530. HIGHLAND BAGPIPE. Similar to preceding. Bag covered with green velvet. Attached to the instrument, in place of the usual mouthpiece, a small pair of bellows. Scotland. 19th Century.

Length of chanter, 13½ inches. Longest drone, 2 feet 8 inches.

858. IRISH BAGPIPE. Cuislean. Bag of prepared leather, fitted with a cylindrical chanter of black wood, ivory mounted, furnished with double beating reed, and having 7 holes in front and one behind; also 6 flat brass keys on knobs. No drones. The bag inflated by a small pair of bellows placed under the right arm. Ireland. 18th Century.

Length of chanter, 1 foot 2 inches.

1513. IRISH BAGPIPE. Bag of prepared leather covered with a green case, fitted with a cylindrical chanter of black wood, pierced with 7 holes in front and one behind, with keys of white metal on knobs. Barrel-shaped drone stock, containing 5 cylindrical tubes tipped with ivory, 3 of them furnished with flat keys of white metal, manipulated by the elbow of the player and forming a rude harmonic accompaniment. Double beating reed in the chanter, single beating reeds in the drone accompaniment. The wind is supplied by a small pair of bellows held under the arm. Ireland. 18th Century.

Length of chanter, 1 foot 3 inches. Largest drone, 1 foot 9 inches.

This form of the Irish pipes is known as the Union Pipe, having been introduced into general use at the end of the 18th Century, when the union between the Irish and English Parliament was effected.

1096. BAGPIPE. Drones and Chanters removed, showing the reeds.

- (A) Chanter, with 3 finger-holes and one metal key.
- (B) Chanter, with 5 finger-holes.
- (C) Drone.
- (D) Drone.
- (E) Stock.
- (F) Bag.
- (G) Mouthpiece of Blow Pipe.
- (H) Shutter Valve.

This instrument is fitted with only single beating reeds, similar to those in the Clarinet. The bag is of goat-skin. Italy. 18th Century.

Longest chanter, 2 feet 2 inches. Longest drone, 1 foot 6 inches.

The Free Reeds (Sub-Section 2) are placed in Case 63 a, East Wall of this Gallery.

SECTION B—*Continued.*

(2) FREE REEDS.

GALLERY 26. CASE 63 a.

(East Wall.)

1777. ACCORDION. A large rectangular case, containing the bellows (eleven folds). In the front of the instrument, 17 brass touches, arranged in 2 rows; at the back, 5 brass keys, worked by the thumb and second finger of the left hand for the bass harmony. Two sets of free reeds to each row. The additional sets being sounded at will by 2 brass stops on the left-hand side in the front case. Belgium. 19th Century. Maker, J. Van den Eynde.

Length, 1 foot 2 inches. Width, 7½ inches. Depth, when open, 20 inches; closed, 10 inches.

The Accordion was invented at Vienna, by Damian, in 1829.

1773. ACCORDION. A rectangular case, decorated with inlay, containing extending bellows (four folds). In the top of the case 9 mother-of-pearl touches and 10 slips of black wood lift 19 round pearl keys. Attached to the board on which the keys are placed, 2 levers raising side brass keys. Free reeds on the single-action principle. France. 19th Century.

Length, 12 inches. Width, 5 inches. Depth when open, 1 foot 4 inches; closed, 6 inches.

307. ACCORDION. A rectangular case containing the bellows (ten folds). On the top of the case 7 metal touches, and at the back 2 thumb touches for the bass harmony and 2 thin brass keys for extra treble notes. Free reeds, single action, covered by a stamped metal box. Switzerland. 19th Century.

Length, $9\frac{1}{4}$ inches. Width when open, 1 foot 4 inches; closed, 8 inches.

2120. APOLLO LYRA. A fantastically shaped case, resembling a lyre with enlarged base, the upper part curved horns in gilt. The front of the base decorated with plaques of pearl fretwork and having 46 black and pearl touches arranged in 2 rows. Two sets of free reeds; the lower row of touches acting upon one set, the upper by a coupling movement acting on both. The wind is supplied by folding bellows concealed within the instrument, moved by a sliding piston worked by the left hand. The piston is placed between the ornamental horns and is kept in position by two guide rods fastened to a cross-bar. Germany. 19th Century.

Height, 2 feet $8\frac{1}{2}$ inches. Width, 1 foot $3\frac{1}{2}$ inches. Depth, 5 inches.

A similar instrument was produced by Schmidt, of Heiligenstadt. c. 1830.

1194. ROCKING MELODEON. A quadrangular case, with two bellows below, the lower one raised by a strong spring. On the top of the case 2 rows of ivory touches, giving a chromatic compass of 3 octaves and 4 notes, from F to A. The touches raise small pallets. The bellows are filled by pressing the left side of the instrument and maintaining a rocking motion, from which the melodeon takes its name. U. S. A. c. 1825. Maker, A. Prescott. Concord, N. H.

Length, 1 foot 7 inches. Width, $10\frac{1}{2}$ inches.

1205. MELOPHONE. Guitar-shaped case, the short neck finished by a scroll and having 104 ivory touches arranged in 8 rows, opening, by the means of levers and connecting wires, round brass keys hidden beneath an ornamentally pierced case. Below the brass keys are 5 rows of free reeds with steel tongues. The wind is supplied by double-action bellows concealed within the instrument and actuated by a piston working through the lower end of the case. Beneath the neck is a lever acting as an octave coupler. France. 19th Century.

Length, 2 feet 7 inches. Width, 12 inches. Depth, 8 inches.

The Melophone was invented in 1837, by Leclerc, of Paris.

2085. MOUTH CONCERTINA. Trapeze-shaped box of white metal, supported on 4 small legs having in front a mother-

of-pearl mouthpiece and on either side 12 small buttons, which, when pressed, raise metal pallets and admit the breath of the performer through the free reed. The tongues of the reeds are of beaten gold. England. Early 19th Century. Maker, C. Wheatstone.

Length, $2\frac{1}{4}$ inches. Width, $2\frac{1}{2}$ inches. Depth, $1\frac{3}{8}$ inches.

This little instrument is the predecessor of the English *Concertina* (No. 1124), invented by Wheatstone in 1820.

1124. CONCERTINA. Hexagonal case containing a four-fold bellows. On either side 24 black, white and red touches, black for the sharps and flats, white for the naturals, the Cs marked in red, giving a chromatic scale of 3 octaves and 5 notes—G to C. The notes of the diatonic scale are placed alternately on either side, and the free reeds enclosed in the end cases are on the double-sounding principle, two reeds of the same pitch being provided for each note, and therefore continuing the same sound with either motion of the bellows. The instrument is held by small thumb straps and fourth finger rests. England. 19th Century. Maker, C. Wheatstone (Inventor), London.

Diameter, $6\frac{1}{4}$ inches. Depth when open, $10\frac{1}{2}$ inches; closed, $4\frac{1}{2}$ inches.

1159. MOUTH HARMONICA. An oblong block of wood, containing 1 set of free reeds giving 10 notes. Blown by the lips. Attached to the block a small bell, sounded by means of a brass key. Germany. 19th Century.

Length, 4 inches.

625. MOUTH HARMONICA. A narrow case of wood containing 20 free reeds, protected on each side of the case by a metal shield. Germany. 19th Century. Maker, Weisse, Stuttgart.

Length, $4\frac{1}{2}$ inches. Width, $1\frac{1}{4}$ inches.

2124. MOUTH HARMONICA. A small case of wood containing 10 free reeds, protected by metal sides. Germany. 19th Century.

Length, 2 inches.

1153. MOUTH HARMONICA. A long cylinder of wood containing a set of free reeds giving 16 notes. Germany. 19th Century.

Length, 5 inches.

1303. **HARMONICOR.** A circular wooden tube with short bell, originally containing 2 rows of free reeds. On the top of the tube 2 rows of black and white ivory touches similar in shape to those of the valve cornets, giving a chromatic scale of 2 octaves, from C to C. At one end a metal tube, to which was attached an india-rubber tube supplying the necessary wind from the mouth of the performer. France. 19th Century.
Length, 1 foot 6 inches. Width, $1\frac{3}{4}$ inches.
2388. **HARMONICOR.** A cylindrical tube of wood furnished with 10 touch pieces, which open small wooden keys, admitting the air to the free reeds. On the left-hand side 2 brass harmony keys. The instrument is furnished with a long mouth-piece and terminates in an imitation bell. U. S. A. 19th Century.
Length, 1 foot 3 inches.
2568. **HARMONITROMPE.** Brass. The form resembling that of a twisted horn. Across its diameter is placed a brass tube containing free reeds and having in its upper side 25 brass keys, giving a chromatic scale of one octave and 11 notes, from C to B natural. Europe. 19th Century.
Width of model, 1 foot 4 inches.
In this and similar instruments furnished with free reeds, the resemblance to brass and wooden instruments is merely accidental, depending upon the caprice of the maker and not in any way affecting the character of the instrument.
1728. **REED HORN.** A short, straight tube fitted with a free reed. Used for signaling purposes. France. 19th Century.
Length, 5 inches.
968. **PITCH PIPE.** A brass tube containing one free reed sounding A. France. 19th Century.
Length, $1\frac{1}{2}$ inches.
2650. **PITCH PIPE.** A small metal cylinder fitted with a free reed. The pitch of the note is altered by a sliding bar which lengthens or shortens the vibrating portion of the reed. A graduated plate shows the position of the bar for each note of the chromatic scale within the octave F—F. U. S. A. 19th Century.
Length, 2 inches. Diameter, $\frac{1}{2}$ inch.
2723. **SIREN.** A short metal tube in gilt, flattened at the mouthpiece end. The sound is produced by means of a perforated

disc in the interior, which, when the instrument is blown, is set in motion by the current of air. U. S. A. 19th Century.

Length, 3 inches. Width, 1 inch.

The principle involved in this instrument is similar to that of the vibrating reed, although with this mechanism it is impossible to sustain a given note, the volume of sound increasing or diminishing with the revolutions of the disc which fluctuate with the varying pressure exerted upon it. The effect produced resembles that of the Æolian Harp, and the same principle is employed on a larger scale in the Sirens used in lighthouses to give warning. The method of revolving the disc or wheel by a current of air was invented by Cogniard de Latour, a Frenchman, in 1827.

932. JOUET. Made of composite material in shape of a human head, with a short tube attached containing a free reed. Spain. 19th Century.

Length, including tube, 4 inches.

933. JOUET. Made of composite material in shape of a human head, with a short tube fitted with a free reed. Spain. 19th Century.

Length, including tube, 4 inches.

1598. JOUET. Terra Cotta. Human head, with opening pierced in the face, through which it can be blown. Rome, Italy. 19th Century.

Length, $3\frac{1}{2}$ inches.

2655. JOUET. Made of composite material in shape of a human head, with short tube attached containing a free reed. Italy. 19th Century.

Length, including tube, 4 inches.

The Catalogue of the Wind Instruments with a Keyboard (Division II) placed in the Central Case of this Gallery (No. 26), will be found on page 196.

The Wind Instruments with Cup Mouthpieces (Section C) are placed in Gallery 25, beginning in Case 86, South Wall.

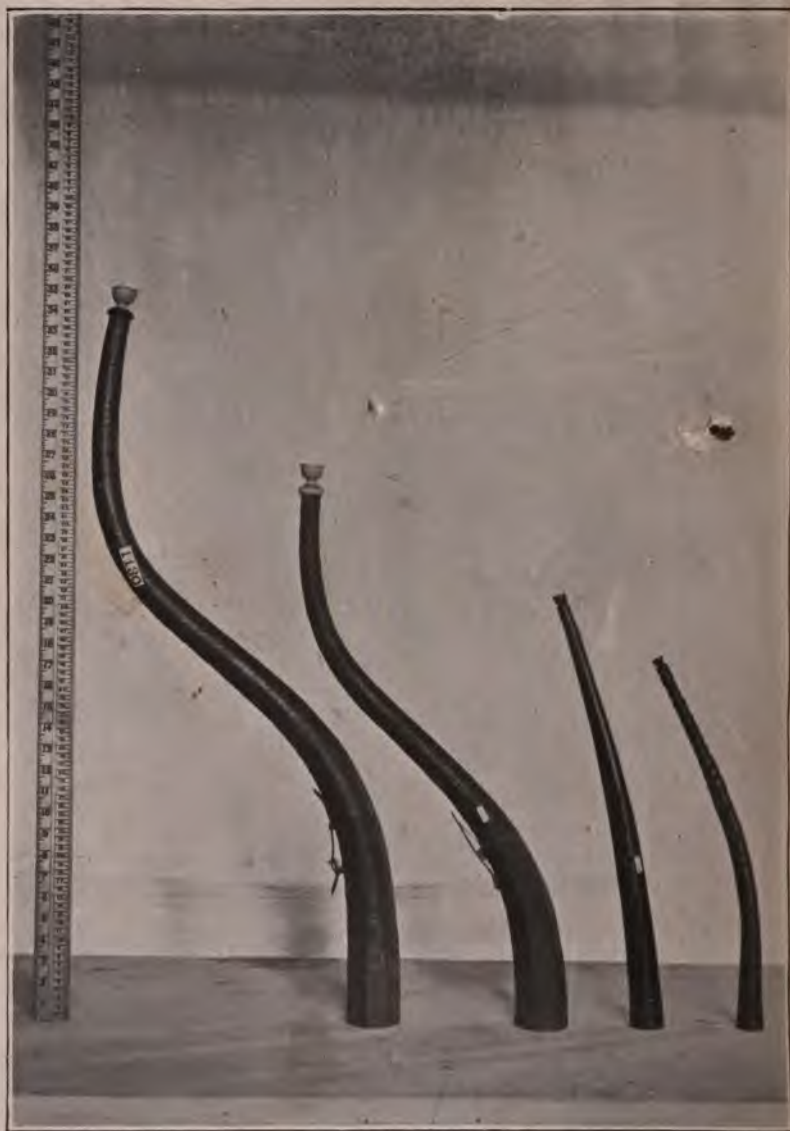


FAMILY OF CORNETS À BOUQUIN.

<i>a.</i>	No. 1670.	Soprano in D.....	page 165
<i>b.</i>	No. 1134.	Alto in A.....	" 165
<i>c.</i>	No. 2201.	Tenor in F.....	" 165
<i>d.</i>	No. 2090.	Bass in D.....	" 166



1



d. *c.* *b.* *a.*

FAMILY OF CORNETS À BOUQUIN.

<i>a.</i>	No. 1670.	Soprano in D.....	page 165
<i>b.</i>	No. 1134.	Alto in A	" 165
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CLASS II. WIND INSTRUMENTS.

DIVISION I. WITHOUT A KEYBOARD.

SECTION C. CUP MOUTHPIECES.¹

GALLERY 25. CASE 86.

2764. HORN. A natural horn, polished, probably from the wild goat. Europe. 19th Century.

Length, 2 feet 7 inches. Diameter, 2 inches.

This instrument illustrates the principle of the simple tube which preceded the introduction of side-holes.

1136. BUKKEHORN, or Prillarhorn. A small horn, probably from the goat, slightly curved, and having four finger-holes on one side. Norway. 19th Century.

Length, 8 inches. Diameter, 2 inches.

This rustic instrument shows one of the earliest attempts to construct a cup-mouthpiece instrument on the side-hole principle. The illustration of a similar instrument is given by Virdung, 1511, under the name of *Krumhorn*.

FAMILY OF CORNETS À BOUQUIN.

The following four instruments, Nos. 1670, 1134, 2201, 2090, form a set or family of *Cornets à Bouquin*. In Italy called *Cornetti Curvi*, and in Germany *Krumme Zinken*.

1670. CORNET à Bouquin, or Cornettino Curvo. *Soprano in D*. A curved tube of wood covered with leather, with conical bore. Six finger-holes on the upper side. Turned ornamentation on the upper part of the instrument. France. Early 17th Century.

Length, 1 foot 6½ inches.

1134. CORNET à Bouquin, or Cornetto Curvo. *Alto in A*. A curved tube of wood covered with leather, with conical bore. Six finger-holes on the upper side. France. Early 17th Century.

Length, 1 foot 9 inches.

2201. CORNET à Bouquin, or Corno Torto. *Tenor in F*. A round tube of wood, bell end octagonal, covered with leather and bent in the shape of an open S, with conical bore. Six finger-holes on the upper side, with an additional lower hole closed by a brass key. Italy. Early 17th Century.

Length, 2 feet 5 inches.

¹ See Preface to Wind Instruments, page 104.

2090. CORNET à Bouquin, or Corno Torto. *Bass in D.* A curved round tube of wood, bell end octagonal, covered with leather, with conical bore. Six finger-holes on the upper side, with a lower hole closed by a brass key. Early 17th Century.

Length, 3 feet.

2288. CORNET à Bouquin, Zink, or Cornetto Diritto *in C.*

A straight octagonal tube of wood covered with parchment and finished at the lower end with a brass bell. Six finger-holes on the upper side, also a thumb-hole at the back. Germany. Early 17th Century.

Length, 1 foot 10 inches.

1669. CORNET à Bouquin, or Cornetto Torto. *Bass in C.*

A round tube of brass with conical bore and four slight curves, giving to the instrument a serpentine form. Ornamented bell. Six finger-holes bushed with brass. France. Early 17th Century.

Length, 3 feet 6 inches.

2142. CORNET à Bouquin, or Cornetto Torto. *Tenor in F.*

An octagonal tube of wood covered with leather, with five slight curves, giving the instrument a serpentine form. Six finger-holes. Italy. Early 17th Century.

Length, 2 feet 4½ inches.

- 2575.¹ CORNO TORTO. *Bass in C.* A round tube of wood covered with leather and bent in the shape of an open S, the bell formed in the shape of a grotesque serpent's head. Six finger-holes in front, with one hole at the back, and an additional lower hole closed by a brass key. Italy. 16th Century. Reproduction from the original in the Museo Civico at Verona.

Length, 3 feet 3 inches.

- 2116.² CORNETTO *in G.* A curved octagonal tube of wood covered with leather. Six finger-holes in the front and one at the back. This and the following four specimens are reproductions of a set of 16th Century Curved Cornets in the Museo del Liceo Musicale at Bologna, Italy.

Length, 2 feet 1½ inches.

- 2112.² CORNETTO *in A flat.* Similar to preceding Reproduction.

Length, 2 feet ¾ inch.

¹ No. 2575. Reproduction procured through the courtesy of the Mayor of Verona.

² Nos. 2116, 2112. Reproductions procured through the courtesy of Prof. Frederico Vellani, Secretary of the Museo del Liceo Musicale, Bologna

- 2113.¹ CORNETTO *in A*. Similar to preceding. Reproduction.

Length, 1 foot 11 inches.

- 2114.¹ CORNETTINO *in D flat*. Similar to preceding. Reproduction.

Length, 1 foot 6 inches.

- 2115.¹ CORNETTINO CURVO *in D*. Similar to preceding. Reproduction.

Length, 1 foot $4\frac{1}{2}$ inches.

The difference in pitch in these instruments was probably designed with a view to their being played either in the Chor-ton for church music, or in the Kammer-ton for secular purposes.

- 2582.² CORNETTO DIRITTO. *Tenor in F*. A round, straight tube of natural wood with conical bore. Six holes in front and one on the back. Mouthpiece detachable. Italy. 16th Century. Reproduction. Original in the Museo Civico at Verona.

Length, 2 feet 6 inches.

- 2584.² CORNETTO MUTO. *Alto in A*. A round, straight tube of stained wood with conical bore. Six finger-holes in front and one on the back. Italy. 16th Century. Reproduction. Original in the Museo Civico at Verona.

Length, 2 feet 1 inch.

In the *Corretto Muto* or *Soft Cornet*, the mouthpiece is made out of the small end of the instrument, and is therefore not detachable.

- 2468.¹ CORNET à Bouquin, or Cornetto Diritto. *Tenor in G*. A round, straight tube of stained wood with conical bore. Six finger-holes in front, one on the back. Mouthpiece detachable. Italy. Early 17th Century. Reproduction. Original in the Museo del Liceo Musicale at Bologna.

Length, 2 feet $2\frac{3}{4}$ inches.

- 2581.² CORNETTO MUTO. *Tenor in G*. A round, straight tube of stained wood with conical bore. Seven finger-holes in front, the lowest made double for right- or left-hand player; one hole at the back. Italy. 16th Century. Reproduction. Original in the Museo Civico at Verona.

Length, 2 feet 3 inches.

¹ Nos. 2113, 2114, 2115, 2468. Reproductions procured through the courtesy of Prof. Federico Vellani, Secretary of the Museo del Liceo Musicale, Bologna.

² Nos. 2581, 2582, 2584. Reproductions procured through the courtesy of the Mayor of Verona.

CASE 86 a.

1643. SERPENT *in C*. A conical tube of wood, covered with leather and bent in the usual serpentine form, with brass crook and bell turned outwardly. No finger-holes; the instrument having 14 keys supplying the necessary chromatic scale. England. c. 1820. Maker, Key, of London.

Length of model, 2 feet 4 inches.

The Serpent, an improvement on the old bass Zinken, is the invention of Edmé Guillaume, a canon of Auxerre in France, 1590.

1090. SERPENT *in C*. A conical tube of wood, covered with leather twisted in the usual serpentine form. Six finger-holes. Brass crook and mouthpiece. Six finger-holes on the front of the unknown.

Length of model, 2 feet 7 inches.

1295. SERPENT *in C*. A conical tube of wood, covered with leather, with four flat brass keys on saddles. Brass mouthpiece and mountings. The instrument is strengthened with brass connecting stays between the curves. England. c. 1820. Maker, Key, of London.

Length of model, 2 feet 4 inches.

2463. SERPENT *in C*. A conical tube of wood, covered with leather, and bent in serpentine form. No brass crook. Ivory mouthpiece. Five finger-holes. Italy. 18th Century.

Length of model, 2 feet 5 inches.

This specimen could have been of but little value as a musical instrument, the finger-holes being arranged between the second and third curves only an inch apart. Ivory mouthpiece.

1630. SERPENT *in C*. Long model. A conical tube of wood covered with leather, twisted on itself with three sharp curves. Brass crook and mouthpiece. Six finger-holes on the front of the instrument. Germany. 18th Century. Maker, W. Schmidt, Mayence.

Length of model, 2 feet 2½ inches.

2537. SERPENT *in C*. A round, conical tube of wood made in several pieces strengthened with skin and covered with leather. The instrument is bent in a serpentine form, with four sharp curves, and has six finger-holes in front. There is no brass crook as in the later serpents. This is one of the earliest forms as used in the early 17th Century. Italy.

Length of model, 2 feet 2½ inches.



Cases 87, 87 a.
Bass Horns.
Page 169.

CASE 87.

312. **BASS HORN** *in B flat*. This instrument is formed of two parallel pieces of brass conical tubing, which are fitted together at one end. There are 6 finger-holes and 3 holes covered with flat metal keys working on saddles. There is a cup mouthpiece of ivory, and the bell represents the grotesque head of a dragon, decorated in color. France. c. 1800.

Height, 3 feet 1 inch.

324. **BASSON RUSSE**, or Bass Horn *in B flat*. This instrument has a long butt-joint of wood mounted with metal bands. Into this are fitted two shorter tubes of wood, one carrying the crook and mouthpiece, the other a brass bell. There are 6 finger-holes, and 3 holes covered with flat metal keys on saddles. France. c. 1790.

Height, 3 feet 6 inches. Diameter of bell, $7\frac{1}{2}$ inches.

1094. **BASS HORN** *in B flat*. The greater part of this instrument is of wood, the bell and butt-joint being of one piece, into which is fitted a metal tube tapering to the cup mouthpiece. There are 6 finger-holes and 4 holes covered with flat metal keys on saddles. France. c. 1810.

Height, 3 feet 4 inches. Diameter of bell, $6\frac{3}{4}$ inches.

882. **BASSON RUSSE**, or Bass Horn *in B flat*. The butt-joint of this instrument is of wood similar to preceding; into this are fitted two short, thick tubes of wood, one carrying the crook and mouthpiece, the other a metal bell, shaped as a grotesque dragon-head. There are 6 finger-holes and 4 holes covered with flat metal keys on saddles. The cup mouthpiece is also of metal. Italy. c. 1790.

Height, 3 feet 10 inches.

CASE 87 a.

2305. **BASS HORN** *in C*. A short, thick butt-joint of wood, with brass mounting. Into this are fitted short pieces of wooden tubing, one carrying the metal crook and mouthpiece, the other a large metal bell. There are 6 finger-holes and one flat metal open key on a saddle, giving low *B flat*. France. c. 1810. Maker, Coeffet, at Gisors, Eure.

Height, 3 feet $1\frac{1}{2}$ inches. Diameter of bell, $8\frac{3}{4}$ inches.

2028. **BASS HORN** *in B flat*. This instrument is entirely of brass. There is a short butt-joint into which are fitted two conical

tubes, one carrying the bell, the other the crook and mouthpiece. There are 6 finger-holes and 4 holes covered with flat metal keys on saddles. England. c. 1800.

Height, 2 feet 10 inches. Diameter of bell, $7\frac{3}{4}$ inches.

2294. BASSON RUSSE, or Bass Horn in *B flat*. A long, thick, wooden butt-joint with brass mountings. Into this are fitted two shorter tubes of wood, one carrying the bell, the other the crook and mouthpiece. There are 6 finger-holes and 5 holes covered with flat metal keys on saddles. France. c. 1800.

Height, 3 feet 3 inches. Diameter of bell, $10\frac{1}{4}$ inches.

1741. CHROMATIC BASS HORN in *B flat*. Copper with brass mounts. The instrument consists of two parallel tubes of large bore united throughout their length by a copper brace. The pear-shaped bell is of brass, and there are 11 flat metal keys on saddles worked by flat brass levers. Ivory mouthpiece, the original crook wanting. Europe. c. 1820.

Length of model, 3 feet 4 inches.

The lowest note of the instrument is *C*, sounding *B flat*, and a small key is provided in the upper part for the *B natural*, the major seventh above, which in the ophicleide was produced by a large *B natural* key at the lower end.

CASE 88.

2369. CHROMATIC BASS HORN in *B flat*, low pitch. Predecessor of the Ophicleide. Eleven flat metal keys on pillars, worked by levers. The whole of this instrument is of brass. Not infrequently they were made of wood. This development of the Bass Horn was invented about 1820 by Streitwolf, of Göttingen. Europe. c. 1820.

Length of model, 3 feet 1 inch.

2564. OPHICLEIDE. *Bass in B flat*. Brass, with nine round flat metal keys on pillars. The bell of the instrument is formed in the shape of a grotesque animal's head, with wide-open jaws, painted and gilded. Europe. c. 1825.

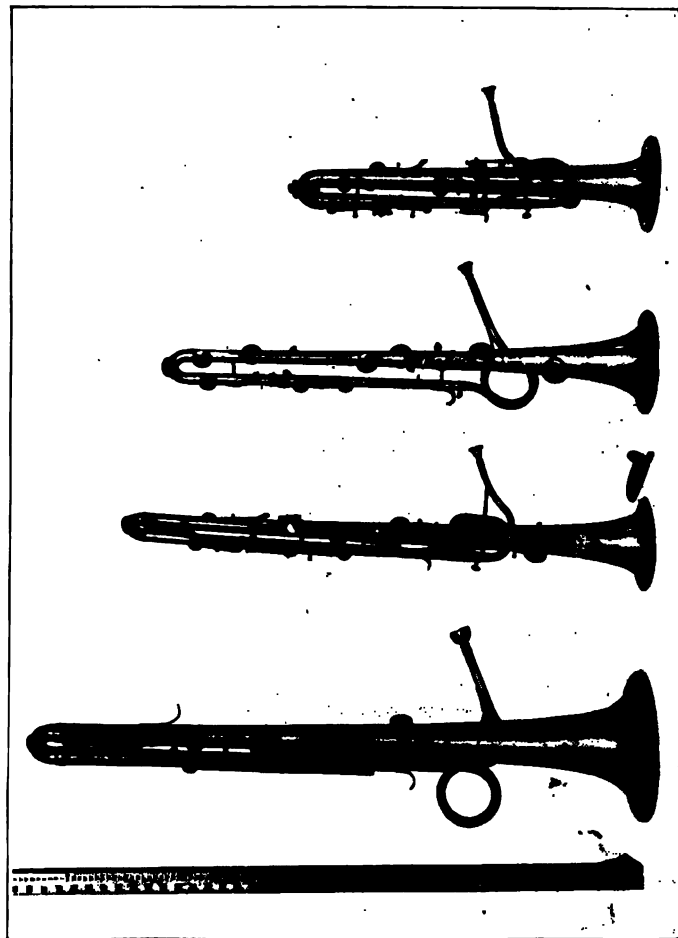
Length of model, 4 feet.

1093. OPHICLEIDE. *Bass in B flat*. Brass, with ten flat metal keys on pillars, and fitted with a tuning slide. Germany. c. 1830.

Length of model, 3 feet $8\frac{1}{2}$ inches.

2566. OPHICLEIDE. *Bass in C*. Brass, fitted with nine rounded keys on pillars and a tuning slide. Germany. c. 1830.

Length of model, 3 feet 4 inches.



a.

b.

c.

d.

FAMILY OF OPHICLEIDES.

Page 171.

a. No. 2591. Bass in C.

b. No. 2464. Tenor in E flat.

c. No. 2411. Alto in E flat.

d. No. 2306. Soprano in B flat.

CASE 88 a.**FAMILY OF OPHICLEIDES.**

These four instruments, Nos. 2591, 2464, 2411, 2306, form a set or family of Ophicleides, the last representative of the side-hole principle, which is now no longer used for cup mouthpiece instruments. See introduction to Wind Instruments, page 105.

2591. OPHICLEIDE. *Bass in C*. Brass. Eleven flat brass keys on saddles. Original ivory mouthpiece. Belgium. c. 1825.
Length of model, 3 feet 6½ inches.
2464. OPHICLEIDE. *Tenor in E flat*, with two crooks, *D and C*. This instrument is of brass, and is fitted with 10 flat metal keys on pillars and a tuning slide. France. c. 1830. Maker, Couturier, Lyons.
Length of model, 3 feet 1 inch.
2411. OPHICLEIDE. *Alto in E flat*. Brass, with nine flat keys on pillars. Belgium. c. 1825. Inscribed, Sax, Bruxelles.
Length of model, 2 feet 11 inches.
2306. OPHICLEIDE. *Soprano in B flat*. Brass, with nine flat keys on pillar. France. c. 1830. Maker, Adolphe Sax.
Length of model, 2 feet 2 inches.

CASE 89.

1617. ALPINE HORN *in A*. Used by herdsmen. A slightly conical tube of wood, expanding into a hexagonal bell; bound with skin. Austria. c. 1800.
Length, 4 feet ¾ inches.
1091. ALPINE HORN *in B flat*. A conical tubing of wood bound with willow and having two sharp bends. Switzerland. Late 19th Century.
Length, 3 feet 3 inches.
1562. ALPINE HORN *in G, low pitch*. Conical tubing of wood bound with bark. It has two sharp turns, the bends being bound together with strips of cloth. Austria. c. 1700.
Length, 4 feet 5 inches.

1152. HORN *in C*. Used at festivals. Pentagonal, being made of five narrow strips of wood bound together with bark at intervals; painted gray and ornamented with floral decoration. Friesland, Holland. 19th Century.
Length, 3 feet 6 inches.

CASE 89 a.

2099. LUR *in D*. Pastoral Horn. A tube of wood bound with bark, slightly conical and expanding into a bell. Norway. 19th Century.
Length, 5 feet 6 inches.
2100. LUR *in E*. Pastoral Horn. Similar to preceding. Norway. 19th Century.
Length, 5 feet.
1149. ALPINE HORN *in C*. A long, conical tube of wood expanding into a bell, formed of a red willow branch halved and hollowed out, then bound together with bands of white willow. Switzerland (Bernese Oberland). 19th Century.
Length, 7 feet 4 inches.
1615. ALPINE HORN *in G*. A conical tube of wood, covered with skin, and expanding into a long, narrow bell. Austria. 19th Century.
Length, 4 feet 10 inches.
1151. LUR *in G*. Pastoral Horn. A conical tube of wood expanding into a bell and bound with bark. Norway. c. 1800.
Length, 4 feet 10 inches.

CASE 90.

1645. FALCONER'S HORN. A short, straight horn of turned ivory with spiral ornamentation. England. 18th Century.
Length, 12 inches.
1485. HUNTING HORN. A short, curved horn of elephant ivory, the small end carved to represent the grotesque head of an animal holding between its teeth the mouthpiece. France. c. 1700.
Length, 1 foot $2\frac{1}{4}$ inches.
1138. COR DE CHASSE. Hunting horn. Formed of a natural ox-horn, polished and carved. The mouthpiece is of ivory,

representing a dog's head, and into the bell end is inserted a broad band of carved ivory. France. 18th Century.

Length, 1 foot 8 inches.

1141. OLIPHANT. Hunting Horn of carved elephant ivory.

The entire surface of this instrument is richly carved with an elaborate floral and scroll-work design, with representations of hunting scenes, and an escutcheon bearing three fleur de lis. The mouthpiece is held in the mouth of a dragon; the bell end of the instrument is finished with flaming points. France. 17th or early 18th Century.

Length, 3 feet $3\frac{1}{2}$ inches. Diameter of large end, $3\frac{1}{2}$ inches.

1145. HORN. An ancient horn formerly used by the bakers to announce that their bread was ready for sale. Made from the horn of an animal, slightly curved; highly polished and ornamented with a metal band in the centre. Amsterdam. 16th Century.

Length, 2 feet $1\frac{1}{2}$ inches. Diameter of bell, $3\frac{1}{2}$ inches.

2493. HORN. Made from the horn of an ox. Metal mountings. Europe. 18th Century.

Length, 1 foot 10 inches.

1144. HORN. Ox horn, natural shape, polished and inscribed "Benito Pereth, 1811." Spain. 18th Century.

Length, 1 foot 2 inches. Diameter of large end, 3 inches.

CASE 90 a.

1148.¹ CORNU. Bronze. Semi-circular in shape, very small at the mouthpiece. Ancient Etruscan. Reproduction. Original in the British Museum. London.

Length, 3 feet 11 inches. Large end, 3 inches.

1133. COR DE CHASSE, or Huchet. Postilion's or huntsman's horn. Wood, covered with leather. Crescent shape, tipped with ivory. France. 17th Century.

Length, 2 feet 5 inches. Diameter, $2\frac{7}{8}$ inches.

1132. COR DE CHASSE, or Huchet. Wood, covered with thin leather. Slightly curved. The small end is tipped with ivory, the large end finished with a narrow band of carved ivory. France. 17th Century.

Length, 3 feet $3\frac{1}{4}$ inches. Diameter, $4\frac{1}{4}$ inches.

¹ No. 1148. Reproduction procured through the courtesy of M. Victor Charles Mahillon of the Conservatory of Music, Brussels.

CASE 91.

1501. SHOPHAR. Ram's Horn Trumpet. A Jewish instrument of the ancient Hebrews, the use of which has been retained to the present day. It to-day forms a part of the ritual in the synagogue services on New Year's Day and the Day of Atonement. It is supposed that the Roman Lituus, the trumpet of the cavalry, took its shape from this form of Shophar, which is also identical in outline with the staff used at the sacred rites of the Roman Augurs. This instrument is of ram's horn, straightened by heat, the end and outer curve notched. Europe. Old Jewish. Presented to the collector by Rabbi Gottheil, of New York.
Length, 2 feet.
372. SHOPHAR. Horn Trumpet. This instrument, said to be made of the horn of an animal called the "kudoo," was at one time used by the Bene-Israel Jews. ^{Europe.} ~~India.~~ 19th Century.
Length, 2 feet 6 inches.
373. SHOPHAR. Ram's Horn Trumpet. This instrument is in shape similar to No. 1501, but much smaller. Europe. 19th Century.
Length, 12 inches.
1495. RUFHORN. Call Horn. A small, straight instrument of horn polished, without ornament. Germany. c. 1760.
Length, 1 foot 1 inch. Diameter of large end, $1\frac{1}{4}$ inches.
1496. RUFHORN. Call Horn. A small, straight horn similar to preceding. Germany. c. 1650.
Length, 10 inches. Diameter, $1\frac{1}{2}$ inches.
1146. RUFHORN. Call Horn. A small, straight horn similar to No. 1495. Germany. 17th Century.
Length, 1 foot 2 inches.
2434. HORN. A small curved metal horn, gold finish. The surface is elaborately ornamented with repoussé design of vine, leaves and fruit. Germany. 16th Century. Reproduction.
Length, 1 foot 1 inch. Diameter of bell, 3 inches.
2372. HORN. Original of gold, constructed in portions and afterward soldered together. The ornaments, some cast and soldered on, others made with punch marks, represent scenes connected with Scandinavian mythology. A runic inscription is found

around the narrow band at the bell, referring to the maker or donor of the horn. Found in 1734 at Gallehuus, Denmark. Pre-historic. Reproduction from casts of the original (now lost), for some time in the Royal Treasury, Copenhagen.

Length, $12\frac{1}{2}$ inches. Diameter, $4\frac{7}{8}$ inches.

1140. COR DE CHASSE. Hunting Horn. A metal horn, slightly curved, silver finish. It is richly ornamented with repoussé design of floral bands and figures engaged in the hunt. The mouthpiece is held by a dragon's head. France. 17th Century. Reproduction.

Length, 1 foot $1\frac{1}{2}$ inches.

2667. HORN. A curved metal horn of rude workmanship, the only ornamentation being a simple band near the centre. Ireland. Early 19th Century.

Length, 2 feet 2 inches. Diameter, large end, 2 inches.

CASE 91 a.

1120. COR DE CHASSE. Semi-circular. Thin brass. The two ends are united by a metal cross-bar. Europe. 18th Century. Length, 4 feet. Diameter of bell, 7 inches.

From the Collection of the Count de Bricqueville.

2492. COR DE CHASSE. Semi-circular. Thin brass. Similar to preceding. Europe. 18th Century.

Length, 3 feet 8 inches. Diameter of bell, $5\frac{1}{2}$ inches.

2285. COR DE CHASSE. Semi-circular. Made of thin brass. Germany. 17th Century.

Length, 1 foot 11 inches. Diameter of bell, 3 inches.

1143. TROMPE DE LORRAINE. Hunting Horn. Brass. A spirally twisted tube enclosed within an outer covering shaped like the ordinary ox-horn, covered with leather, with brass mountings. Invented by Gregoire de Nancy, 1866. Engraved, "Raoux, 66 rue d'Angoulême, Paris. No. 111." France. Late 19th Century.

Length of model, 1 foot 6 inches. Diameter of bell, $5\frac{3}{4}$ inches.

1142. HORN. Thin brass. Slightly curved. Probably used for signaling at sea. France. Early 19th Century.

Length, 1 foot $10\frac{1}{2}$ inches. Diameter of bell, 6 inches.

CASE 92.

2205. CORNET DES CHASSEURS *in E flat*. Hunting Horn in pottery. Circular, with four turns. Germany. 18th Century.
Width of model, 1 foot 5 inches.
1116. HORN *in G*. Made of clear glass. Circular. Six turns. France. 19th Century.
Length of model, 10 inches.
1112. HORN. A small horn of blue glass, with tubing in one turn. France. 19th Century.
Length of model, 7 inches.
1115. HORN *in G*. Made of pottery, with characteristic Delft decoration in blue and white. Circular, with three turns. Germany. 19th Century.
Width of model, 1 foot 9 inches.
1119. HORN. A small horn of rude pottery, having one turn, the bell end representing the head of a fish. Italy. 19th Century.
Length of model, 8 inches.
1121. HORN. Small horn of rude pottery, with one short turn in the centre. Italy. 19th Century.
Length of model, 8 inches.

CASE 92 a.

- 1089.¹ BUCINA *in G*. Made of thin metal tubing, bent in circular form. The instrument was supported by a cross-bar of wood. It was the horn used by the Roman infantry. Italy. Facsimile of a specimen found at Pompeii, now in the National Museum, Naples. Ancient Roman.
Width of model, 4 feet.
2729. LUR *in C*. War Horn. Conical tube of bronze formed in sections and bent in a contorted shape, the larger end rising above the performer's head. Instead of the usual bell, the instrument terminates in a disc of bronze ornamented with bosses. At the mouthpiece end, attached by rings to the tube, are small

¹ No. 1089. Reproduction procured through the courtesy of M. Victor Charles Mahillon of the Conservatory of Music, Brussels.

plates of bronze which are supposed to have served as jingles. Reproduction. Original in the Royal Museum at Copenhagen, Denmark. c. 1000 B. C.

Total length, 6 feet 3 inches.

1117. HUNTING HORN *in F*. Cor de Chasse Waldhorn.

Circular, of brass, with two turns. Bells ornamented with band of repoussé decoration. Inscribed, Jacob Schmidt. Nuremberg, Germany. 17th Century.

Width of model, 2 feet.

CASE 93.

2304. POST HORN *in G*. Circular, with four small turns.

Brass, with one finger-hole. Germany. Early 19th Century.

Width of model, 9½ inches.

2418. COR OMNITONIQUE. Diatonic Orchestral Horn.

In this instrument, invented by C. Sax, Père, in 1824, the necessity of crooks for the various keys is obviated by means of a graduated slide which adds or detaches certain lengths of tubing. The hand is used in playing this instrument. Made by the inventor in 1833. Belgium.

Width of model, 1 foot 10 inches.

2207. POST HORN *in B flat*. Circular. Brass, with four turns. Germany. 19th Century.

Width of model, 9 inches.

2556. POST HORN *in B flat*. Circular. Brass, with four double turns. The bell is flattened for portability. Inscribed, "Pelitti, Milano." Italy. Early 19th Century.

Width of model, 7 inches.

2267. HAND HORN *in E flat*. Invention Horn. This horn was introduced in 1760, the "Invention" being the addition of crooks to the body of the instrument, instead of their being attached to the small end of the tubing. Italy. Late 18th Century.

Width of model, 1 foot 8 inches.

2198. ORCHESTRAL HORN *in F*. This instrument is of brass, and has three box or pump valves. Inscribed, "J. L. Allen. Maker, N. Y., U. S. A." 19th Century.

Width of model, 1 foot 10 inches.

2283. POST HORN *in E flat*. Circular, of brass and ornamented with cord and tassels. Inscribed, "G. Eschenbach, Berlin, Germany." Early 19th Century.
Width of model, 11 inches.
1105. HAND HORN *in D*. Brass. The shape is formed to fit the body of the player, and the tubing is coiled about the middle in a compact way, thus reducing the instrument to the smallest possible size for portability. Invented by Sax under the name "*Cornet-Trompe*." Belgium. Early 19th Century.
Height of model, 7 inches. Diameter of bell, 9 inches.
2204. HUNTING HORN *in D*. Brass. Circular, with five double turns. Inscribed, "Fait à Paris par Raoux, Ordinaire du Roy, rue Ticquetonne." France. c. 1760.
Width of model, 1 foot 3 inches.
2415. HORN *in B flat*. Circular. One turn. Brass. Used in the military bands in the early part of the 19th Century. Belgium.
Width of model, 1 foot 3 inches.

CASE 93 a.

2307. HUNTING HORN *in D*, low pitch. Skeleton model. Brass. Coiled with one turn in a large circle. France. 18th Century.
Width of model, 3 feet 4½ inches. Diameter of bell, 6½ inches.
1118. HUNTING HORN *in D*. Brass. Circular, with three turns. France. Late 18th Century.
Width of model, 2 feet.

CASE 94.

2557. BALLAD HORN *in C*. Brass, with three piston valves. The tubing has a large bore characteristic of the tenor horn and Sax horn group. Inscribed, "Koehler, London." England. Late 19th Century.
Width of model, 1 foot 9 inches.
2197. ORCHESTRAL HORN *in F*. Brass, with three rotary valves worked by long levers. Germany. c. 1830.
Width of model, 1 foot 10 inches.
The Orchestral Horn is often called the *French Horn*.

2196. ORCHESTRAL HORN *in G*. Brass, with three rotary valves. Inscribed, "Fabb. Premiato di Fer. Roth, Milano." Italy. Late 19th Century.

Width of model, 1 foot 9 inches.

2346. ORCHESTRAL HORN *in B flat*, with nine crooks and three piston valves. Of brass. Inscribed, "Ex Unial de Paris, 1889, Medaille d'or. Gautrot, Paris." France. 19th Century.

Width of model, 1 foot 10 inches.

CASE 94 a.

- IIII. ORCHESTRAL (HAND) HORN *in B flat*, with ten crooks and hand-painted bell. Circular. Of brass. Besides the ten crooks, it is also fitted with a tuning slide for regulating the pitch. Inscribed, "Tabard à Lyons." France. Early 19th Century.

Width of model, 1 foot 11 inches.

The fact that the natural or open notes on the horn ~~and~~ similar instruments are superior in tone to those produced by the hand, ~~or~~ by the depression of a valve, has necessitated the use of crooks, *i. e.*, additional pieces of tubing, curved in a circle, attached to the instrument immediately below the mouth-piece. An orchestral horn *in C* would possess eight or ten such crooks, enabling the player to put the instrument in every key of the chromatic scale within the compass of the octave *B flat* to *B flat*. The crooks most in use, however, are *F*, *E flat* and *D*. These crooks or *corps de rechange* came into common use about 1700.

2419. ORCHESTRAL (HAND) HORN *in F*. Of brass, with painted bell. Similar to preceding. Belgium. 18th Century.

Width of model, 1 foot 10 inches.

- IIII0. ORCHESTRAL (HAND) HORN *in high B flat*, with ten crooks to low *B flat*. Circular. Of brass. The crooks attached to the body of the instrument in a way similar to that of the "Invention Horn" (No. 2267, Case 93). Stamped, "G. F. Glier Senior, and Sons," Dresden. Germany. Early 19th Century.

Width of model, 1 foot 11 inches.

2284. POST HORN *in G*, with two short (Berlin) pump valves. Circular, of brass. Ornamented with a heavy cord and tassels. Inscribed, "Ehren Post Horn für den Postillon. Ludwig Kelle." Germany. c. 1860.

Width of model, 12 inches.

1129. POST HORN *in B flat*. Straight. Brass, without ornament. Germany. 19th Century.
Length, 3 feet 11¼ inches.
2635. COACH HORN. Straight. Iron, without ornament. U. S. A. 19th Century.
Length, 5 feet 8 inches.
This horn was formerly used on the coach running between Lancaster and Philadelphia.

CASES 95, 95 a.

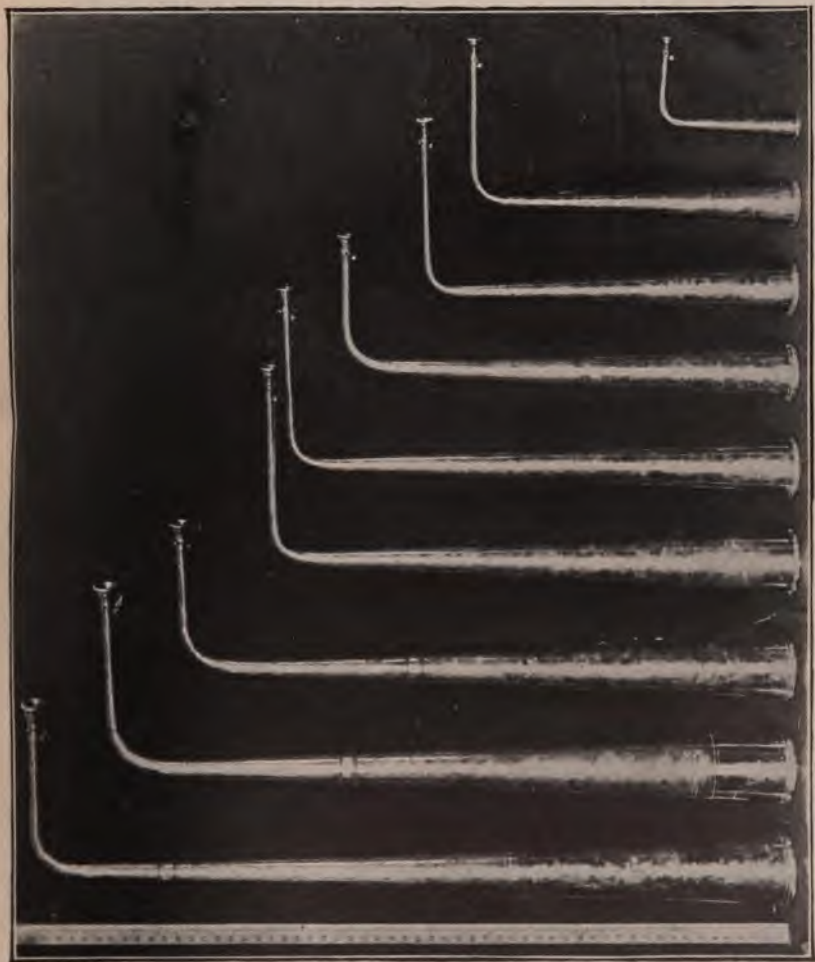
2353. HORN *in F* (high octave). The Russian Ohotnitchiyerog. A conical tube of brass bent at a right angle near the mouthpiece. Russia. 19th Century.
Length, 1 foot 3 inches. Diameter of bell, 1¾ inches.
1626. HORN *in E flat*. Of copper. Similar to preceding. Russia. 19th Century.
Length, 2 feet 2 inches. Diameter of bell, 2½ inches.

SET OF RUSSIAN HORNS.

The eight following instruments, Nos. 2354, 2355, 1894, 2356, 2357, 1895, 1897 and 1896, form a complete octave of the *Ohotnitchiyerog* or *Russian Horn*, and the accompanying note is taken from a description of the Russian Horn Band in the "Catalogue Descriptif et Analytique du Musée Instrumental du Conservatoire Royal de Bruxelles." Vol. 2, p. 377.

"In 1751, J. A. Maresch, cornetist of the Chapelle de l'Imperatrice Elisabeth of Russia, conceived the idea of forming a band composed exclusively of these horns. To thirty-seven musicians he gave an equal number of horns, varying in length from one foot to seven feet, which produced between them the fundamental sounds of all the chromatic degrees of a scale of three octaves. Each performer was able to produce but one sound, with the exception of those having the twelve horns giving the higher notes of the series, who were able to produce, over the fundamental sound, its repetition an octave higher than the first harmonic, which completed the fourth octave of this curious orchestra. One can easily appreciate the difficulties that Maresch had to encounter in order to execute with precision certain rapid movements. His success, however, was enormous, and these orchestras were much in vogue at that period."

2354. OHOTNITCHIYEROG *in F*. A conical brass tubing, bent at right angle near the mouthpiece. Russia. 19th Century.
Length, 2 feet 10 inches. Diameter of bell, 3 inches.
2355. OHOTNITCHIYEROG *in E*. Similar to preceding.
Length, 3 feet 5½ inches. Diameter of bell, 3½ inches.



Set of Russian Horns.

1894. OHOTNITCHIYEROG *in D*. Similar to preceding.
Length, 3 feet $5\frac{1}{2}$ inches. Diameter of bell, 4 inches.
2356. OHOTNITCHIYEROG *in C*. Similar to preceding.
Length, 4 feet $1\frac{1}{4}$ inches. Diameter of bell, 4 inches.
2357. OHOTNITCHIYEROG *in B flat*. Similar to preceding.
Length, 4 feet $4\frac{1}{2}$ inches. Diameter of bell, $4\frac{1}{2}$ inches.
1895. OHOTNITCHIYEROG *in A*. Similar to preceding.
Length, 4 feet $8\frac{1}{4}$ inches. Diameter of bell, $4\frac{3}{4}$ inches.
1897. OHOTNITCHIYEROG *in G*. Similar to preceding.
Length, 5 feet $4\frac{1}{4}$ inches. Diameter of bell, $5\frac{1}{4}$ inches.
1896. OHOTNITCHIYEROG *in F*. Similar to preceding.
Length, 5 feet 9 inches. Diameter of bell, $5\frac{1}{2}$ inches.

CASE 96.

- 2560.¹ TRUMPET *in B flat*. Dark metal, with polished brass mountings. Inscribed, "Antoni Schnicz, Nuremberg, 1585." Reproduction. Original in the Museo Civico, Verona, Italy.
Length of model, 1 foot 6 inches.
2462. TRUMPET *in G*, with *F* crook. This instrument is of brass, and has four flat keys. Inscribed, "Leonardo Massarenti in Minerbo." Italy. Early 19th Century.
Length of model, 1 foot 4 inches.
1421. TRUMPET *in high C*. Brass, with two short turns near the mouthpiece. France. 19th Century.
Length of model, 1 foot 6 inches.
1101. CAVALRY TRUMPET *in F*. Brass, with four bends, the bell ornamented with a rudely engraved design of acorns and oak leaves. Inscribed, "Flemming et Schoengarth in Breslau." Germany. Early 19th Century.
Length of model, 1 foot 5 inches.
2375. TRUMPET *in D*. Brass. This instrument has two bends. The bell is finished with a beading, and is ornamented

¹ No. 2560. Reproduction procured through the courtesy of the Mayor of Verona.

with a rude design of festoons. The boss is plain, but the mountings are engraved. Inscribed, "Will. Haas, in Nuremberg." Germany. 17th Century.

Length of model, 2 feet $1\frac{3}{4}$ inches.

1097. TRUMPET *in D*. Brass. This instrument has two bends and a boss. The boss is set with colored crystals, and the bell is ornamented with crystals and cherubim. The inscription on the bell is almost entirely obliterated, an ornament having been placed over it, probably at a later date. Germany. 17th Century.
Length of model, 2 feet $4\frac{3}{4}$ inches.

2420. TRUMPET *in G*. Made of brass, with two bends. Belgium. Early 19th Century.
Length of model, 2 feet $1\frac{1}{2}$ inches.

2533. SLIDE TRUMPET *in E*, with crooks for *D* and *C*. Brass with embossed bell and engraved boss and ferule. Double slide. Inscribed, "Koehler, London." England. c. 1850.
Length of model, 1 foot $11\frac{1}{4}$ inches.

2531. TRUMPET *in E flat*. Brass, with embossed bell and ferule, with two disc valves, as patented by Shaw in 1838. Inscribed, "Koehler & Sons." England. c. 1850.
Length of model, 1 foot $10\frac{1}{4}$ inches.

2532. TRUMPET *in E flat*. Of brass, with improved disc valves by Koehler. In this instrument the disc is replaced by a crescent. England. c. 1850. Inscribed, "Koehler & Sons."
Length of model, 1 foot 7 inches.

1098. TRUMPET *in G*. Of brass, with four bends and two double piston ascending valves. The valve plate is inscribed on one side with the date "1829"; the bell is inscribed, "Michael Saurle in München. Dem K. Landwehr Tügen Bataillon gehörig." Bavaria. 1829.
Length of model, 1 foot $9\frac{1}{2}$ inches.

809. TRUMPET *in B flat*. Brass, with three rotary valves. Germany. 19th Century.
Length of model, 1 foot $5\frac{1}{4}$ inches.

1103. CAVALRY TRUMPET *in F*. Brass, with four bends and a small boss. The bell is ornamented with beading. Inscribed, "Michael Saurle in München. Dem K. Landwehr Tügen Bataillon gehörig." Bavaria. Late 18th Century.
Length of model, 1 foot 4 inches.

1102. CAVALRY TRUMPET *in F*. Similar to preceding. Inscribed, "Fait à Paris par Courtois, rue Mazarine." France. Early 19th Century.
Length of model, 1 foot $4\frac{1}{2}$ inches.
2546. TRUMPET *in B flat*. Brass. The tubing is wound about in fantastic shape, expanding gradually into a large bell. Used for fanfares. Italy. 19th Century.
Length of model, 2 feet 1 inch.
1147. TRUMPET *in B flat*. Made of clear glass. Italy. 19th Century.
Length of model, 1 foot 9 inches.
1100. TRUMPET *in E flat*. Clear glass, with two bends. France. 19th Century.
Length of model, 1 foot 8 inches.
2303. TROMPE DES MONTAGNES. *In B flat*. Signal Trumpet. Of brass, bent compactly on itself with two turns to make it more portable. France. c. 1800.
Length of model, 1 foot 5 inches.
1107. TRUMPET. Of dark metal. The bell terminating in the grotesque head of an animal. Used for fanfares in processions. Italy. 18th Century.
Length, 2 feet $1\frac{1}{2}$ inches.
2287. TRUMPET *in D*. Of brass. Similar to the ancient Tuba and Herald's Trumpet. Germany. 17th Century.
Length, 2 feet $5\frac{1}{2}$ inches.
2714. MOUTHPIECE. Section of bronze tubing, finished in a cup mouthpiece, probably fragment of a Roman Tuba. Reproduction. Original excavated at Pompeii and preserved in the Museum at Naples.
Length, $7\frac{1}{2}$ inches. Diameter, $1\frac{1}{8}$ inches.
2282. TRUMPET *in D*. Similar to No. 2287, but shorter. Of brass. Germany. 17th Century.
Length, 1 foot 5 inches.
2643. HAND TRUMPET *in F*. Brass. Curved form, with two bends and engraved bell. The crook, which acts also as a tuning slide, is inserted in the middle of the instrument, after the

manner of the Invention Horn, No. 2267, Case 93. See page 177. Germany. Late 18th Century.

Length of model, following the curve, 1 foot 8 inches.

This trumpet, which was called in France *Trompette à demi-lune*, and in Germany *Stopf-Trompete*, is made in curved form in order that the bell may be in reach of the player's hand, which was used, as in the Hand Horn, for producing the missing notes of the chromatic scale. See Introduction to Wind Instruments, page 106.

CASE 96 a.

1628. TRUMPET *in C*. Used by heralds and in theatrical displays. Brass, with two bends. The tubing is turned compactly upon itself and the mouthpiece end brought through the upper bend. The bell is ornamented with a castle in bas-relief, over which is inscribed "Wynendaele," with the trade-mark of the maker. The remainder of the inscription is as follows: "Adolphe Sax à Paris. Seul grand prix 1867." France, 1867.

Length of model, 2 feet 11 inches.

1355. TRUMPET *in G*. This is of brass and has two short bends in the centre in order to reduce the length and admit a tuning slide. France. 19th Century.

Length of model, 3 feet 4½ inches.

1114. TRUMPET *in C*. Used by the heralds. A long, straight trumpet of brass, with a boss and two rings for affixing the banner. Germany. 17th Century.

Length, 3 feet 6 inches.

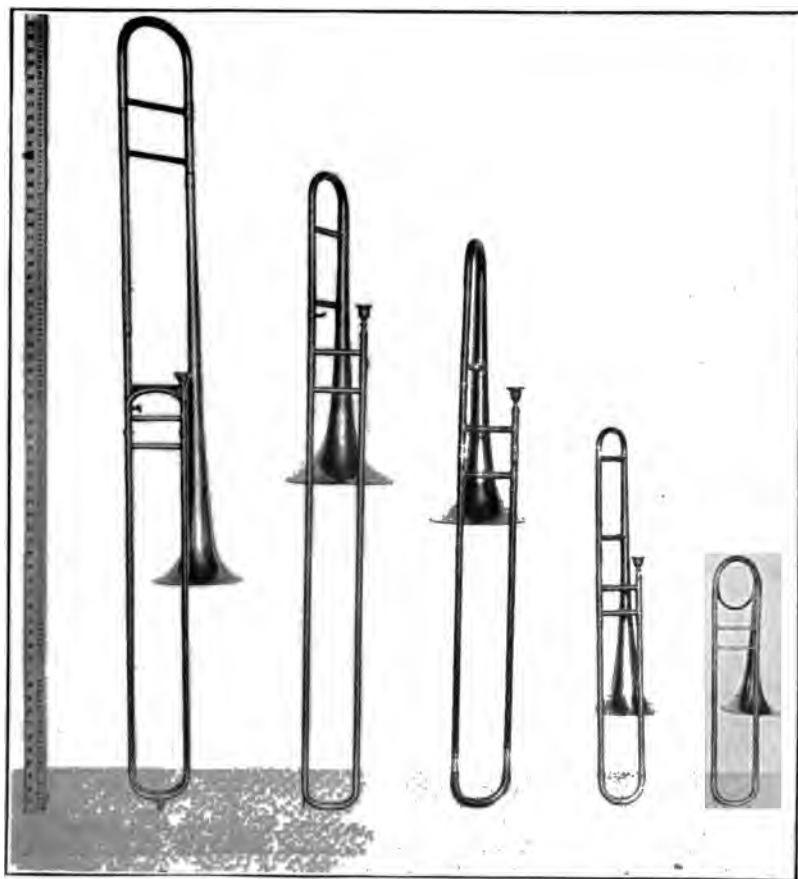
2435. TRUMPET *in A*. Serpentine shape. Brass, very much corroded. Probably used in processions. Germany. 17th Century. Total length, 4 feet 10½ inches.

2456. LITUUS *in G*. Bronze, and similar in shape to the *Shophar*, the cylindrical tube being bent upward like a crook at the lower end, where it enlarges into a small bell. Reproduction. Length, 5 feet.

The *Lituus* was used by the Roman cavalry. The present reproduction, presented by M. Victor Charles Mahillon of the Conservatoire Royal de Musique, Bruxelles, was made from a reproduction of the original discovered in 1827, near Rome, now in the palace of the Vatican.

1172. TRUMPET *in C*. Tubing of hard wood, polished, with metal bell and mouthpiece. England. 19th Century.

Length, 3 feet 3 inches.



a.

b.

c.

d.

e.

FAMILY OF SLIDE TROMBONES.

Page 185.

- a.* No. 2071. Contra Bass in BB.
- b.* No. 2221. Bass in G, high pitch.
- c.* No. 2072. Tenor in B flat.
- d.* No. 2074. Alto in F, low pitch.
- e.* No. 2075. Soprano in B flat.

2642. TRUMPET *in D*. Brass. The tubing forms a double circle in the centre of the instrument, which is furnished with a *C* crook. France. c. 1825.

Length of model, 2 feet $3\frac{1}{2}$ inches.

From 1820 to 1830 Circular Trumpets were frequently used in the French orchestras.

2278. BUGLE *in G* with *F* slide. Brass, with four bends. Europe. Late 19th Century.

Length of model, 1 foot $3\frac{1}{2}$ inches.

CASE 97.

FAMILY OF SLIDE TROMBONES.

The five following instruments, Nos. 2071, 2221, 2072, 2074, 2075, form a set or family of Trombones; the bass is to be found also in the key of *F*, the tenor also in *C*, and the alto in *E flat*.

2071. SLIDE TROMBONE. *Contra Bass in BB*. Brass, with double slide. France. Late 19th Century. Stamped, "Thibouville Lamy, Paris, '93."

Length of model, 4 feet 11 inches.

2221. SLIDE TROMBONE. *Bass in G, high pitch*. Brass. Europe. Late 19th Century.

Length of model, 4 feet.

2072. SLIDE TROMBONE. *Tenor in B flat*. Brass, with German silver mountings. Inscribed, "C. A. Zebisch & Son, N. Y." U. S. A. Late 19th Century.

Length of model, 3 feet 6 inches.

2074. SLIDE TROMBONE. *Alto in F, low pitch*. Brass. Europe. 19th Century.

Length of model, 2 feet $5\frac{1}{2}$ inches.

2075. SLIDE TROMBONE. *Soprano in B flat*. Brass. Europe. 19th Century.

Length of model, 1 foot 8 inches.

- 2561.¹ SLIDE TROMBONE. *Bass in F*. Dark metal, with polished brass mountings. Inscribed, "Antoni Schnitzer, Nuremberg, 1578." Reproduction. Original in the Museo Civico, Verona, Italy.

Length of model, 3 feet 6½ inches.

2368. SLIDE TROMBONE. *Bass in F*. Brass, much discolored. Italy. Early 19th Century.

Length of model, 3 feet 9½ inches.

CASE 97 a.

2410. SLIDE TROMBONE. *Tenor in B flat*. This instrument is of brass, without ornament, and is made with the bell erect. By Chas. Kretzschmann, Strassburg, Germany. c. 1830.

Length of model, 4 feet 2 inches.

1301. SLIDE TROMBONE. *Tenor in B flat*. Brass, with painted bell modeled to resemble a dragon's head. Italy. Early 19th Century.

Length of model, 3 feet 7 inches.

This form of Trombone was at one time in vogue in the military bands of France and England. In France it was called "*Buccin*."

2408. SLIDE TROMBONE. *Tenor in B flat*. Similar to preceding. Belgium. Early 19th Century.

Length of model, 3 feet 6 inches.

1106. SLIDE TROMBONE. *Tenor in B flat*. Similar to No. 1301. France. Early 19th Century.

Length of model, 4 feet 1 inch.

2409. SLIDE TROMBONE. *Tenor in B flat*. This instrument is of brass, with horn-shaped bell, the interior of which is painted. Europe. c. 1830.

Length of model, 3 feet 5 inches.

2152. SLIDE TROMBONE. *Tenor in B flat*. Similar to No. 1301. France. Early 19th Century.

Length of model, 3 feet 10 inches.

¹ No. 2561. Reproduction procured through the courtesy of the Mayor of Verona.



a.

b.

c.

Trombones. Piston Valves.

Page 187.

- a.* No. 2325. Bass in B flat.
- b.* No. 2389. Tenor in B flat.
- c.* No. 2337. Alto in E flat.

1





a.

b.

c.

Trombones. Rotary Valves.

<i>a.</i> No. 2310.	Bass in B flat.....	page 187
<i>b.</i> No. 2222.	Tenor in B flat.....	" 188
<i>c.</i> No. 2387.	Alto in E flat.....	" 188

CASE 98.

2325. TROMBONE. *Bass in B flat*. Similar to preceding, with three piston valves. Inscribed, "Henry Distin, Importer for J. W. Pepper, Phila. & New York. No. 1766." U. S. A. 19th Century.

Length of model, 3 feet 10½ inches.

The use of pistons in connection with the trombone was introduced in 1818.

2389. TROMBONE. *Tenor in B flat*. Brass, with three piston valves. Inscribed, "Henri Pourcelle, Paris." France. c. 1870. Length of model, 2 feet 5 inches.

2337. TROMBONE. *Alto in E flat*. This instrument is of brass, and is fitted with three light action piston valves. Inscribed, "August Pollman, Light Action, N. Y." U. S. A. Late 19th Century.

Length, 1 foot 9½ inches.

CASE 98 a.

2144. TROMBONE. *Tenor in B flat*. Brass, with three rotary valves and a water key. Inscribed, "Pietro Borsari, Bologna." Italy. Late 19th Century.

Length of model, 3 feet.

2146. TROMBONE. *Tenor in B flat*. Brass, with three rotary valves. The tubing carrying the bell is bent over the head, probably for use in cavalry regiments. Inscribed, "Pietro Borsari, Bologna." Italy. Late 19th Century.

Length of model, 2 feet 4 inches.

2145. TROMBONE. *Tenor in B flat*. Brass, upright model, with three rotary valves and water key. Inscribed, "Pietro Borsari, Bologna." Italy. Late 19th Century.

Length of model, 2 feet 5 inches.

2461. TROMBONE. *Tenor in B flat*. Brass, upright model, with rotary valves and a water key. Inscribed, "Gaetano Spada, Bologna." Italy. c. 1860.

Length of model, 2 feet 4½ inches.

2310. TROMBONE. *Bass in B flat*. Brass, with three rotary valves. Germany. c. 1850.

Length of model, 3 feet 6 inches.

2222. TROMBONE. *Tenor in B flat*. Brass, with three rotary valves and a water key. Inscribed, "K. Schamal, Prague." Austria. 19th Century.
Length of model, 3 feet 5 inches.
2387. TROMBONE. *Alto in E flat*. Brass, with three rotary valves. Inscribed, "Frank Serpek, K.K.P.E., Fabrik in Wien." Austria. c. 1860.
Length of model, 2 feet 9 inches.

CASE 99.

The Instruments in this Case not described in this section will be found under Class V, page 249.

2413. CORNOPEAN. *Soprano in B flat*. Brass, with two piston valves. Inscribed, "Sax, Bruxelles." Belgium. c. 1830.
Length of model, 1 foot 8 inches.
2412. CORNOPEAN. *Tenor in B flat*. Brass, with two piston valves. Inscribed, "De Vries Liene." Belgium. c. 1836.
Length of model, 1 foot 6 inches.
2414. CORNOPEAN. *High Soprano in E flat*. Brass, with two piston valves. Belgium. c. 1830.
Length of model, 11 inches.
The name *Cornopean* was given to the earliest form of valved instruments, now called *Cornets*.
2313. CORNET. *Soprano in B flat*. Brass, with three piston valves. Inscribed, "Gautrot, Paris." France. Late 19th Century.
Length of model, 1 foot 2 inches.
2348. CORNET. *High Soprano in E flat*. Brass, with three light action piston valves. Inscribed, "Ex. Universale de Paris, 1889. Medaille d'or. Gautrot. Paris." France. 1899.
Length of model, 1 foot 3 inches.
2512. CORNET. *Soprano in B flat*. Brass, with three light action piston valves. U. S. A. Late 19th Century.
Length of model, 1 foot 1½ inches.
2587. DUPLEX HORN. *Soprano in B flat*. Brass, with two bells and three rotary valves, being a combination of Flügelhorn and Cornet, a small valve in the centre of the instrument direct-

ing the air into either form of instrument at the will of the performer. Italy. c. 1855.

Length of model, 1 foot 5 inches.

Sets of duplex instruments were made by Pelitti of Milan.

2347. ALTO HORN in *E flat*. Brass, with three light action piston valves. Inscribed, "Ex. Universale de Paris, 1900. Hors concours. Gautrot, Paris." France. 1900.

Length of model, 2 feet 1½ inches.

2417. FLÜGELHORN. *High Soprano in E flat*. Brass, with three piston valves. Inscribed, "Pelitti Milano." A form of valved bugle. Italy. c. 1860.

Length of model, 1 foot 5 inches.

The *Flügelhorn* is an adaptation of valves to the ordinary Bugle. Owing to the large bore, the tone is rounder than that of the Cornet, but its use is now mainly confined to Germany and Italy.

1539. FLÜGELHORN. *Soprano in B flat*. Brass, with three rotary valves and the bell mounted with a German silver rim. Relic of the Battle of Fair Oaks, May, 1862. American Civil War. U. S. A. c. 1860.

Length of model, 1 foot 1½ inches.

2302. FLÜGELHORN. *Soprano in B flat*. Brass, with three piston valves. Germany. Late 19th Century.

Length of model, 1 foot 2 inches.

2203. FLÜGELHORN. *Soprano in B flat*. Brass, with three rotary valves. Inscribed, "Ch. Letchhorn in Cassel." Germany. c. 1860.

Length of model, 1 foot 6 inches.

2458. FLÜGELHORN. *Tenor in B flat*. Brass, with three double-action valves worked by levers. Inscribed, "Ferd Roth." Italy. 19th Century.

Length of model, 1 foot 9½ inches.

CASE 99 a.

2286. BUGLE in *C*. Brass, with two turns. France. Early 19th Century.

Length of model, 1 foot 3½ inches.

2367. BUGLE. *Tenor in B flat*. Brass, the tubing wound in a serpentine shape. Italy. 19th Century.

Length of model, 2 feet 3½ inches.

1104. BUGLE *in C*, or Pocket Post Horn. Brass, with four bends. Europe. 19th Century.
Length of model, 9 inches.
2277. BUGLE. *Tenor in C*. Brass, with six bends. Europe. Late 19th Century.
Length of model, 1 foot 1½ inches.
1099. KEYED BUGLE. *Soprano in B flat*. Brass, with six flat brass keys on pillars. Inscribed, "C. Devartes, Bruxelles." Belgium. c. 1840.
Length of model, 1 foot 9 inches.
2326. KEYED BUGLE. *Soprano in C*. Copper, with nine flat keys of German silver on small saddles. Inscribed, "Graves & Co., Winchester, N. H." U. S. A. c. 1840.
Length of model, 1 foot ¾ inches.
1123. KEYED BUGLE. *Soprano in B flat*. Copper, with seven keys. There are also three extra crooks, *A*, *A flat* and *G*. Inscribed, "Joseph Greenhill, 18 Little Britain, London." England. c. 1830.
Length of model, 2 feet 2 inches. Diameter of bell. 4½ inches.

CASES 100, 101 a.

FAMILY OF HELICONS.

The instruments in these two cases, Nos. 2190, 2189, 2191, 2192, 2193, 2194, 2195, form a family or set of Helicon Horns, a name given to them from their circular shape. They are of German origin, and were first introduced in America by Dodworth, c. 1848. They are invaluable for cavalry regiments, as the larger instruments rest on the shoulder of the performer whether playing or not playing.

2190. HELICON. *Soprano in E flat*. Brass, with three rotary valves. Europe. 19th Century.
Length of model, 1 foot 2½ inches.
2189. HELICON. *Soprano in B flat*. Brass, with three rotary valves. Europe. 19th Century.
Length of model, 1 foot 2 inches.
2191. HELICON. *Alto in E flat*. Brass, with three rotary valves. Europe. 19th Century.
Length of model, 1 foot 8 inches.



d.

b.

c.

a.

FAMILY OF HELICONS.

<i>a.</i> No. 2190.	Soprano in E flat	.....	page 190	<i>c.</i> No. 2191.	Alto in E flat	.....	page 190
<i>b.</i> No. 2189.	Soprano in B flat	.....	" 190	<i>d.</i> No. 2192.	Tenor in B flat	.....	" 191





FAMILY OF SAX HORNS. Bell Over Shoulder Model.			
	Page.		Page.
<i>a.</i> No. 2295. Soprano in B flat...	191	<i>c.</i> No. 2297. Tenor in B flat....	191
<i>b.</i> No. 2296. Alto in E flat....	191	<i>d.</i> No. 2298. Baritone in B flat..	191
		<i>e.</i> No. 2300. Bass in E flat....	192
		<i>f.</i> No. 2301. Contra Bass in BB flat.....	page 192

2192. HELICON. *Tenor in B flat*. Brass, with three rotary valves and German silver mountings. Europe. 19th Century.
Length of model, 2 feet $3\frac{1}{2}$ inches.
2193. HELICON. *Baritone in B flat*. Brass, with three rotary valves. Inscribed, "Pelitti Milano." Italy. 19th Century.
Length of model, 2 feet $2\frac{1}{2}$ inches.
2194. HELICON. *Bass in B flat*. Brass, with three rotary valves. Europe. 19th Century.
Length of model, 2 feet 7 inches.
2195. HELICON. *Contra Bass in E flat*. Brass, with three rotary valves. Europe. 19th Century.
Length of model, 2 feet $11\frac{1}{2}$ inches.

CASES 101, 101 a.

FAMILY OF SAX HORNS.

BELL OVER SHOULDER MODEL.

These two cases (101, 101a) include representatives of the Sax Horn family, Nos. 2295, 2296, 2297, 2298, 2299, 2300, 2301. The peculiar model, *Bell over shoulder*, is an American invention, introduced by Dodworth, the inventor, in 1838, with the object of throwing the sound backward in order that it might be more easily heard by the troops following the band.

2295. SAX HORN. Bell over shoulder. *Soprano in B flat*. Brass, silver-plated, with three rotary valves. Inscribed, "John Strettos, New York." U. S. A. 19th Century.
Length of model, 1 foot 9 inches.
2296. SAX HORN. Bell over shoulder. *Alto in E flat*. Brass, with three rotary valves. German silver rim. U. S. A. 19th Century.
Length of model, 2 feet $8\frac{1}{2}$ inches.
2297. SAX HORN. Bell over shoulder. *Tenor in B flat*. Brass, silver-plated, with three rotary valves. U. S. A. 19th Century.
Length of model, 2 feet 9 inches.
2298. SAX HORN. Bell over shoulder. *Baritone in B flat*. Brass, with German silver rim. Three rotary valves. U. S. A. 19th Century.
Length of model, 2 feet $9\frac{3}{4}$ inches.
2299. SAX HORN. Bell over shoulder. *Bass in B flat*. Brass, with three rotary valves. U. S. A. 19th Century.
Length of model, 3 feet $10\frac{1}{2}$ inches.

2300. SAX HORN. Bell over shoulder. *Bass in E flat*. Brass, with three rotary valves. U. S. A. 19th Century.
Length of model, 4 feet 3½ inches.
2301. SAX HORN. Bell over shoulder. *Contra Bass in BB flat*. Brass, with three rotary valves. Inscribed, "F. Seltmann, Philadelphia." U. S. A. 19th Century.
Length of model, 4 feet 9½ inches.

CASE 102.

FAMILY OF SAX HORNS.

WITH ROTARY VALVES.

This case includes representatives of the Sax Horn family, with rotary valve action, Nos. 2188, 2187, 2186, 2185, 2184, 2182, 2183, invented by Adolphe Sax, of Paris, in 1845. The *alto in E flat* is in some countries called the *tenor in E flat*, the deeper instruments, in *B flat*, being described as baritone or *bass*.

2188. SAX HORN. *Bass in E flat*. Brass, with three rotary valves. U. S. A. 19th Century.
Length of model, 3 feet.
2187. SAX HORN. *Bass in B flat*. Brass, with three rotary valves. U. S. A. 19th Century.
Length of model, 2 feet 6½ inches.
2186. SAX HORN. *Baritone in B flat*. Brass, with three rotary valves. U. S. A. 19th Century.
Length of model, 2 feet 4½ inches.
2185. SAX HORN. *Tenor in B flat*. Brass, with three rotary valves. U. S. A. 19th Century.
Length of model, 2 feet 4½ inches.
2184. SAX HORN. *Alto in E flat*. Brass, with three rotary valves. U. S. A. 19th Century.
Length of model, 1 foot 11½ inches.
2182. SAX HORN. *Soprano in B flat*. Brass, with three rotary valves. Germany. c. 1860.
Length of model, 1 foot 3 inches.
2183. SAX HORN. *High Soprano in E flat*. Brass, with three rotary valves, and German silver mountings. U. S. A. 19th Century.
Length of model, 1 foot 3½ inches.



a.

b.

c.



d.

e.

f.

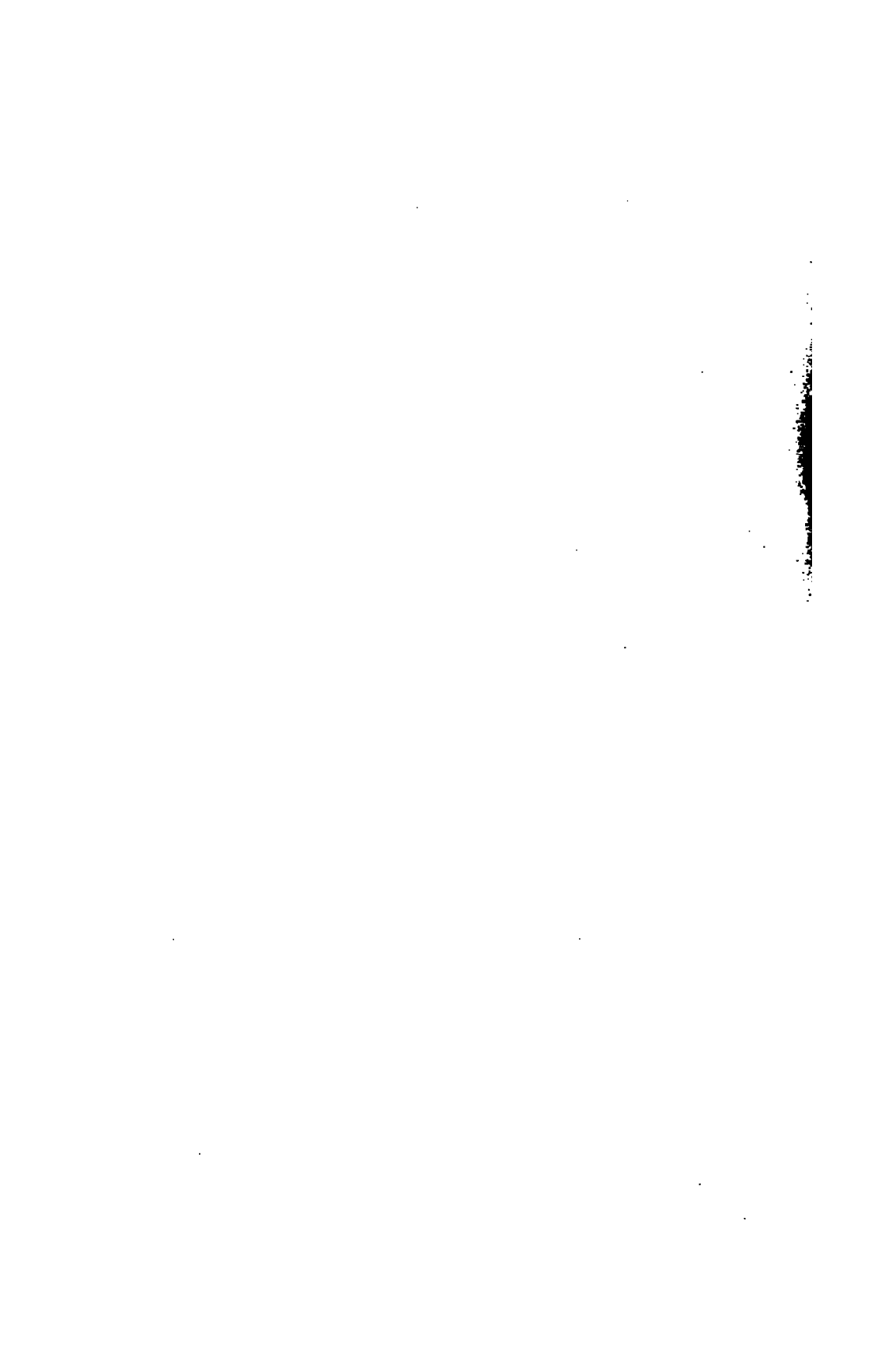
g.

FAMILY OF SAX HORNS. With Rotary Valves.

Page 192.

- a.* No. 2188. Bass in E flat.
b. No. 2187. Bass in B flat.
c. No. 2186. Baritone in B flat.
d. No. 2185. Tenor in B flat.

- e.* No. 2184. Alto in E flat.
f. No. 2182. Soprano in B flat.
g. No. 2183. High Soprano in E flat.





a.

b.

c.



d.

e.

f.

g.

FAMILY OF SAX HORNS. With Pump Valves.

Page 193.

a. No. 2181. Bass in E flat.

b. No. 2180. Euphonium or Bass in B flat.

c. No. 2179. Baritone in B flat.

d. No. 2178. Tenor in B flat.

e. No. 2177. Alto in E flat.

f. No. 2176. Soprano in B flat.

g. No. 2175. High Soprano in E flat.



Cases 102, 102 a.
Sax Horns.
Pages 192, 193.

CASE 102 a.**FAMILY OF SAX HORNS.****WITH PUMP VALVES.**

The following instruments, Nos. 2181, 2180, 2179, 2178, 2177, 2176, 2175, include representatives of the Sax Horn family, with pump valve action.

2181. SAX HORN. *Bass in E flat*. Brass, with three pump valves and German silver mountings. Europe. 19th Century.
Length of model, 2 feet $8\frac{3}{4}$ inches.
2180. SAX HORN. *Euphonium or Bass in B flat*. Brass, with three pump valves. Europe. 19th Century.
Length of model, 2 feet 6 inches.
2179. SAX HORN. *Baritone in B flat*. Brass, with three pump valves. Europe. 19th Century.
Length of model, 2 feet $5\frac{1}{2}$ inches.
2178. SAX HORN. *Tenor in B flat*. Brass, with three pump valves. Europe. 19th Century.
Length of model, 2 feet $6\frac{1}{2}$ inches.
2177. SAX HORN. *Alto in E flat*. Brass, with three pump valves. Europe. 19th Century.
Length of model, 2 feet 1 inch.
2176. SAX HORN. *Soprano in B flat*. Brass, with three pump valves and water key. Europe. 19th Century.
Length of model, $12\frac{1}{2}$ inches.
2175. SAX HORN. *High Soprano in E flat*. Brass, with three pump valves. Europe. 19th Century.
Length of model, 1 foot $3\frac{1}{2}$ inches.

CASE 103.

2703. BOMBARDON *in E flat*. Brass, with six piston valves and a funnel-shaped bell. Europe. 19th Century.
Length of model, 3 feet $1\frac{1}{4}$ inches.
2416. SONOROPHONE. *Alto in E flat*. Brass, circular model, with three rotary valves. England. c. 1860.
Width of model, 1 foot 4 inches.

2457. BOMBARDON. *Contra Bass in BB flat*. Brass, with three double piston valves worked by levers. Inscribed, "Leopold Ullman." Austria. c. 19th Century.
Length of model, 4 feet 10 inches.
2269. BOMBARDON. *Bass in E flat*. Brass, with three double piston valves worked by levers. The levers missing. Inscribed, "August Beyed, Vienna." Austria. 19th Century.
Length of model, 3 feet 11 inches.

CASE 103 a.

1109. BOMBARDON. *Bass in E flat*. Brass, with three pump valves. The tubing forming the bell makes a large sweep over the head of the player. Inscribed, "Adolphe Sax, Paris. No. 13802." France. c. 1850.
Width of model, 4 feet $2\frac{1}{2}$ inches.
1092. EUPHONIUM. *Bass in B flat*. Brass, with three piston valves. Inscribed, "Gautrot, Paris." France. 19th Century.
Length of model, 1 foot $11\frac{1}{2}$ inches.
- The name *Bombardon* or *Bombardoni* has been given in Italy to the bass and contra bass Sax Horns in *E flat* and *BB flat*, while the name *Euphonium* was given by Sax to a bass Sax Horn with a bore of large diameter.

CASE 104.

2312. SAX HORN. *Tenor in B flat*. Brass, with three rotary valves and water key. German silver mountings. Germany. c. 1870.
Length of model, 2 feet $\frac{1}{4}$ inch.
2588. HORN in *B flat*. Brass, with three double piston valves; the bell turned forward. Italy. Late 19th Century.
Length of model, 2 feet 1 inch.
2311. SAX HORN. *Alto in E flat*. Brass, with three short pump valves. The tubing describes a circle at the lower bend of the instrument. Europe. 19th Century.
Length of model, 2 feet $5\frac{3}{4}$ inches.
2460. SAX HORN. *Tenor in B flat*. Brass, with three rotary valves and German silver mountings. Inscribed, "Franz Leibel, Insbruck." Austria. c. 1860.
Length of model, 2 feet 10 inches.





d.

c.

b.

a.

FAMILY OF SAX HORNS IN WOOD.

Page 195.

a. No. 2421. Bass Horn in F flat.

b. No. 2422. Tenor Horn in B flat.

c. No. 2423. Alto Horn in E flat.

d. No. 2424. Cornet in B flat.

2589. HORN *in B flat*. Bassoon model. Brass, with four rotary valves. Upright bell, contracted immediately below the rim. Italy. 19th Century.
Length of model, 3 feet.

CASE 104 a.

FAMILY OF SAX HORNS IN WOOD.

These four instruments, Nos. 2421, 2422, 2423, 2424, form a family. Although cleverly constructed of wood, the tone does not greatly differ from the ordinary brass Sax Horn.

2421. TUBA, or Bass Horn, *in E flat*. Wood, fitted with three pump valves, also in wood, with brass tops. Bends covered with leather or parchment. Europe. 19th Century.
Length of model, 3 feet $\frac{3}{4}$ inch.
2422. TENOR HORN *in B flat*. Wood, same as preceding. Europe. 19th Century.
Length of model, 2 feet 5 inches.
2423. ALTO HORN *in E flat*. Wood, same as preceding. Europe. 19th Century.
Length of model, 2 feet 2 inches.
2424. CORNET *in B flat*. Wood, same as preceding. Europe. 19th Century. Length of model, 1 foot 4 inches.

The Wind Instruments, with a Keyboard (Division II), are placed in the Central Case of the next Gallery (No. 26).

CLASS II. WIND INSTRUMENTS.

DIVISION II. WITH A KEYBOARD.

SECTION A. WHISTLES AND BEATING REEDS.

GALLERY 26. CENTRAL CASE.

For description of the Stringed Instruments in this case under Class I, see page 19.

For description of Nos. 1217, 1411, 952, 2137, see page 203.

1188. PORTATIVE ORGAN. Compass, 4 octaves and one note—E to F. A low wooden case, exterior painted blue, with conventional ornaments of gilt and gilt moulding; in the centre below the keyboard a grotesque head. At the back, and outside the case, one set of wooden open pipes, arranged in 2 rows. Keys, boxwood naturals with black sharps. The organ is blown by two small handles attached to small bellows, which fill an air reservoir concealed beneath the pipes. Italy. 17th Century. In its present form this instrument contains a good deal of new work. Maker unknown.

Length, 1 foot 10½ inches. Depth, 1 foot 5 inches. Height, not including pipes, 11 inches.

The term "Portative" was applied to a little instrument which could be moved easily by one person from place to place, and in its smallest form could be played while carried—as often seen in paintings representing St. Cecilia. A "Positive" was a larger organ, requiring more effort to move and only playable when placed in position.

1193. SMALL POSITIVE ORGAN. Compass, 3 octaves and 9 notes—C to A; the lowest octave short. Dark wooden case with ordinary beading, the folding doors bearing two coats of arms. 42 pipes within the cabinet; a carved screen with ornamental pipe-front conceals one set of sounding pipes; the treble of open metal, the bass of stopped wood, arranged in 2 rows. On each side of the keyboard a block with carved scroll. No stops. Keys, ebony naturals with gilt fronts, ivory sharps. The organ is blown by 2 small bellows on the top of the instrument, raised alternately. Germany. Early 17th Century. Maker unknown.

Height, 2 feet 10 inches. Width, 1 foot 7 inches.



No. 1191.
Cabinet Organ,
With Removable Spinet.
Page 197.

1190. SMALL CABINET ORGAN. Compass, 2 octaves and 2 notes—C to D. Walnut case in cabinet form, almost black from age, with carved pilasters, representing human figures, at each side, and ivory plaques inserted in the corners, representing saints in prayer; in front, 4 small drawers, with central cupboard, having folding doors carved, with brass mounts. Immediately above the keys, which are placed within a recess beneath the drawers, lined with antique velvet, an oil painting representing the raising of Dorcas. At the back of the cabinet one set of metal pipes, arranged in 2 rows. Keys ebony, with white sharps. The organ is blown by a carved hand lever, which projects from the right-hand side of the cabinet. The air reservoir (now missing) was originally placed on the top of the cabinet. Beautiful instrument. Germany. Early 17th Century. Maker unknown.

Height, 1 foot 9 inches. Width, 1 foot 11 inches. Depth, 12½ inches.

1191. CABINET ORGAN with Removable Spinnet. Case of ebony veneered wood in the form of a cabinet, decorated on the outside with panels of antique crimson velvet, supported on a four-legged stand (renewed). On opening the folding doors a cabinet is disclosed, having 14 drawers and a central cupboard with bronze door-mounts, and a decorative bronze panel representing the Entombment of Christ. Below is the keyboard of the organ. Compass, 3 octaves and 8 notes—C to A. Keys, ivory naturals, with black sharps. The lowest octave short; the upper G sharp omitted. On the left-hand side are 4 stops, admitting the wind to the following registers placed at the back of the case: Stop Diapason, Flute, Super-Octave and Regal, the pipes of the last two registers missing. The organ is blown by a handle attached to the side of the stand of the case and working a small bellows beneath the cabinet, from which the wind is transmitted to a wind reservoir placed on the top. This may not have been the original method of blowing the instrument. Immediately above the keyboard of the organ is placed, in a recess, an octave spinnet. Compass, 3 octaves and 8 notes. This instrument may be played either within the cabinet or may be withdrawn for separate use. The sound-board is painted with flowers, and has one small rose. Germany, 1598. Maker, Laurentius Hauslais. On the jack-rail of the Spinnet is the following inscription: "D. G. Quid possibile apud Lurentium Hauslais X Toribergensur," *i. e.*, "By the favor of God see what Lawrence Hauslais of Nuremberg can do."

Width, 2 feet 5 inches. Height, 2 feet. Depth, 1 foot 10 inches.

2027. BIBLE REGAL. Compass, 4 octaves—C to C. An oak case in book form, placed at the back of the keyboard, contains two bellows, which were lifted alternately, supplying wind to the instrument. Immediately behind the keyboard is a set of pipes, furnished with beating reeds, placed on their sides. Keys, light wood naturals, with black sharps. The keyboard folds in the middle, and with the pipes can be placed within the book-shaped case; hence the name Book or Bible Organ. Germany. 17th Century. Reproduction. Original in the Galpin Collection, Hatfield, England.

Length, 1 foot 7 inches. Width, 1 foot. Depth, 8 inches. Dimensions of closed case.

2601. BOOK ORGAN. Compass, 2 octaves and 8 notes—A to C. A case in the form of an old missal book, covered with brown leather, and ornamented with large embossed mounts of pierced brass. On loosening the leather fastenings and raising the cover, immediately in front is found the keyboard, and at the back 2 long bellows, furnished with lead weights, and raised alternately by 2 leather straps. Below the keyboard are placed the reeds, on the single beating principle, as in the old Regal organs. Keys, stained boxwood naturals, with black sharps. France. 17th Century.

Length, 1 foot 7 inches. Width, 12½ inches. Depth, 4¼ inches.

1668. BOOK ORGAN. Compass, 2 octaves and 7 notes—F to C. A case in the form of four folio books, covered with stamped leather, each bearing the title, "Traité des Pais Bas." Within the cover is attached an engraving of the Supper at Emmaus. On opening the cover, which is formed by the first volume, immediately in front is the keyboard; at the back, a bellows moved by a lever with a carved handle outside the case, and consisting of one small bellows and an air reservoir. Below the case are the reeds, on the free reed principle. Keys, black naturals, with white sharps. France. The case appears to be old—17th Century; the interior renewed.

Length, 1 foot 7¼ inches. Width, 1 foot 2 inches. Depth, 9¼ inches.

2289. BOOK ORGAN. Compass, 1 octave and 10 notes—G to F. Bottom G sharp omitted. A case in the form of a parchment-covered book. On raising the cover, which has on the inside a colored picture of musical monks, is found the keyboard and blowing apparatus, consisting of a small bellows and a reser-

voir. Keys, ebony naturals, with black sharps. Beneath the keyboard and bellows are the stopped wooden pipes. Germany. The case antique; interior mechanism renewed.

Length, 1 foot 1 inch. Width, 9 inches. Depth, $4\frac{1}{4}$ inches.

1780. CHAMBER ORGAN. Compass, 4 octaves and 4 notes —C to E, lower C sharp wanting. Tall mahogany case, with ornamental pipe front. Sheraton tracery, and inlaid with black and white lines. The keyboard slides within the instrument when not in use, and on each side are placed two stops, admitting the air to the following registers: Stop Diapason Treble, Stop Diapason Bass, Principal and Super-Octave. The diapasons of wood, the other pipes metal. The organ is blown by a foot pedal placed below the keyboard, and on the left-hand side is one small composition pedal. England. 1779. Maker, Thos. Chapman, of London.

Height, 6 feet 8 inches. Width, 3 feet 11 inches.

CLASS II. WIND INSTRUMENTS.

DIVISION II. WITH A KEYBOARD.

SECTION B. FREE REEDS.

GALLERY 26. CENTRAL CASE.

1922. ENLARGED MODEL OF FREE REED showing action of the vibrating tongue. Presented by Messrs. Mason & Hamlin, U. S. A.

2496. MELODEON. Compass, 3 octaves and 2 notes—G to A. A small oblong mahogany case, supported on a black stand with 3 legs, furnished with 2 foot pedals, one attached to a small lever on the left-hand side of the instrument, working bellows, the other a small swell shutter. Keys, ivory naturals, with black sharps. Germany. 19th Century.

Length, 1 foot 8½ inches. Width, 7 inches. Depth, 6 inches.

1522. ROCKING MELODEON. Compass, 3 octaves—G to G. A small oblong case of walnut. At the bottom is placed the blowing apparatus, consisting of a pair of bellows. By pressing down the left-hand side of the instrument the bellows are filled, the lower ones distended by a strong spring, and by maintaining a rocking motion a constant supply of wind is provided for the instruments. Keys, ivory naturals, with black sharps. A small button on the top of the instrument moves a forte shutter. U. S. A. Early 19th Century. Maker, Caleb Pacard, Bridgewater, Mass.

Length, 1 foot 8½ inches. Width, 10½ inches.

The Rocking Melodeon is sometimes called a "Teter."

1195. ROCKING MELODEON. Compass, 3 octaves—G to G. Similar to the preceding, but the case is more shallow and the construction suggests a little earlier date. Keys, ivory naturals with black sharps. A small pin on the top of the instrument moves a forte shutter. U. S. A. Early 19th Century.

Length, 2 feet 3 inches. Width, 1 foot.

1200. HARMONIFLUTE. Compass, 3 octaves and five notes—C to F. An ebonized wooden case with bellows at the

back. This instrument can be played on the lap, knee or on a stand; if on a stand the bellows are worked by a pedal. France. 19th Century.

Length, 1 foot 9½ inches. Width, 7 inches. Depth, 6 inches.

The Harmoniflute was first made in 1852 by Boulon of Paris.

1779. SERAPHINE. Compass, 4 octaves, from C to C. An oblong oak case, standing on 4 legs, which fold up when desired. Beneath, 2 small pedals, one moving a bellows placed beneath the instrument and the other opening a small swell shutter beneath the case. Keys, ivory naturals, with black sharps. U. S. A. c. 1840. The Seraphine was invented in 1833 and was the precursor of the Harmonium.

Length, 2 feet 7½ inches. Width, 2 feet 4 inches. Depth, 3 inches.

2402. PORTABLE MELODEON. Compass, 2 octaves and 4 notes. Small, narrow case of red mahogany. At the back a single bellows; in the front an air reservoir. Keys, white naturals, with black sharps. A double set of free reeds in unison. The instrument is contained in a small red mahogany case, furnished with a leather carrying strap. On opening the cover the keys are seen, occupying the length of the case; the back forms a bellows, the front an air reservoir. Beneath the keys are two rows of free reeds in unison. England. Late 19th Century.

Length, 1 foot 3¼ inches. Width, 4½ inches. Depth, 6½ inches.

1192. HARMONIPHON. Compass, 2 octaves and 7 notes—C to A. A small shallow case, containing a set of free reeds, which are placed at the back. On the left-hand side a brass nozzle, to which is attached a rubber tube. The wind supply is furnished from the mouth of the performer. France. 19th Century. Maker unknown.

Length, 1 foot 5 inches. Width, 9 inches.

2098. ORGANO PIANO. Compass, 5 octaves and 8 notes—E to C. A tall, upright case of mahogany, standing on 4 claw-ball feet, with 2 turned pillars supporting the keyboard, and above, 2 ornamental pillars, painted green and gold. Keys, ivory naturals, with black sharps. Long sticker action. At the bottom of the case 5 brass pedals—Soft, Loud, Bassoon, Drum and Silent. The organ mechanism enclosed within the bottom of the case below the

keyboard, and consisting of two small bellows with air reservoir, painted red and gold, and worked by a foot pedal on the right-hand side, in front of the case. The sound is produced by reeds of the harmonium or free type. The organ part of the instrument seems to be a later addition. U. S. A. Early 19th Century. Maker unknown.

Height, 8 feet. Width, 3 feet 8½ inches. Depth, 1 foot 10 inches.

CLASS II. WIND INSTRUMENTS.**DIVISION III. WITH AUTOMATIC MECHANISM.****GALLERY 26. CENTRAL CASE.**

1217. **BARREL ORGAN.** Compass, 23 notes. A small oblong case of wood, containing 2 rows of small wooden pipes, one stopped, the other open. At the back a large barrel. In front 19 revolving figures. Italy. Early 19th Century.

Height, 1 foot 9 inches. Width, 2 feet $1\frac{1}{2}$ inches.

1411. **BARREL ORGAN.** Compass, 14 notes. Small upright mahogany case, with ornamental pipe front, containing 2 rows of metal pipes (one row missing), with 2 stops in front, a third stop acting on the mechanical motion of the barrel. England. c. 1830.

Height, 1 foot $11\frac{1}{2}$ inches. Width, 1 foot 7 inches.

This instrument was formerly provided with 3 drums.

952. **SERINETTE.** Compass, 9 notes. A case of light wood, in book form. On raising the back of the case a small barrel is exposed to view, worked by a handle on an endless screw attached to a spindle, the handle being on the outside. On the opposite side a row of small open metal pipes. France. 18th Century. Maker, Tomasin. Inside is a note in French to the following effect: "This Serinette was restored by A. F. Bernot, watchmaker at Wassy, in 1784, after having been spoiled by bad repairs, which rendered it entirely useless."

Length, $12\frac{1}{2}$ inches. Width, $7\frac{1}{2}$ inches. Depth, 3 inches.

The Serinette, a miniature barrel organ, was so called from being played by fanciers in teaching the finch (*serin*) and other birds to pipe.

2137. **BARREL ORGAN.** Compass, 10 notes. A small black case, painted with flowers, the outside of the cover having a painted hunting scene. Vernis-Martin decoration. Three short handles on the left-hand side admit wind into the 3 registers of metal

pipes; namely, stopped metal Diapason, Octave and Super-Octave. A small handle in the front of the case moves a spindle, which works a bellows, and by means of an endless screw opens the valves. France. c. 1800. Maker, Ch. Denis, Mirecourt, Vosges. With it is a case containing 2 extra valves.

Length, 1 foot 3 inches. Width, 8 inches. Height, 10 inches.

Instruments under Vibrating Membranes (Class III) are placed in Gallery 25, Cases 105 a, 106 a, West Wall.

CLASS III. VIBRATING MEMBRANES.

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PREFACE

TO

CLASS III. VIBRATING MEMBRANES.

For most of these instruments musicians are indebted to the African and Asiatic races, nor has any great improvement been made in them by Western nations, except in the case of the Orchestral or Kettle Drums, with their perfected tuning mechanism.

From a membranous instrument the sound is generally obtained by *striking*, the skin being in this case what the reed is to the wind and the cord to the stringed instruments, the source of vibration. It may be stretched either on a hoop, as in the Tambourine, in which case the simple sound of the tightly drawn membrane is alone produced, or this simple sound may be modified, or intensified, by a resonator, as in the Drum.

It is not, however, always necessary to employ the stick to excite vibration. The Onion Flute, so called because a piece of onion skin was formerly placed over the end of the tube, is a mediæval instrument of which the Mirlitons, Zobos, etc., are the present day representatives, and the paper and comb the earlier form. The melody is hummed through a hole in the side of the flute and the sound is taken up by the *sympathetic vibration* of the skin and amplified by the resonance of the tube.

In the Spanish Pan Bomba an indefinite note is produced by the *friction* of a stick moved rapidly backward and forward

through a hole in the skin, which is tightly stretched over an earthen jar.

The keyboard has not as yet been applied to the drums or to any of the vibrating membranes in this class, though mechanical action, either automatic or pedal, has occasionally been employed.

F. W. G.

SOME KINDRED INSTRUMENTS OF OTHER COUNTRIES ¹

ILLUSTRATING

CLASS III. VIBRATING MEMBRANES.

- The *Duff*, without jingles, of India, No. 206, Case 17 a, Gallery 27.
- The *Dayéré* of Persia, No. 1898, Case 24 a, Gallery 27.
- The *Daraboukkeh* of Arabia, No. 349, Case 29 a, Gallery 27.
- The *Daman* (Skull Drum) of India, No. 213, Case 18, Gallery 27.
- The *Nakakeer* of Egypt, No. 1363, Gallery 28, the prototype of the Kettle Drums employed in the cavalry bands of the present day, Nos. 1232, 1233, Case A, Gallery 27.
- The various Drums and Tom Toms used by the African tribes and the American Indians, Gallery 28.
- The *Nyastaranga* (Throat Trumpet) of India, No. 198, Case 17, Gallery 27, with its vibrating skin, may be compared with the Onion Flute, No. 1702, Case 105 a, Gallery 25.

¹ As the instruments in Gallery 28 are subject to classification and re-arrangement, the case numbers have been omitted.

CATALOGUE

OF

CLASS III. VIBRATING MEMBRANES.

OVER EAST AND WEST WALL CASES.

2523. BASS DRUM. Wooden barrel, with heads braced with cords. U. S. A. 19th Century.
Height, 1 foot $5\frac{1}{2}$ inches. Diameter, 2 feet $3\frac{1}{2}$ inches.
1175. DRUM. Long wooden barrel, with heads of skin braced with cords. Body painted with coat of arms. Italy. 17th Century.
Height, 2 feet $3\frac{1}{2}$ inches. Diameter, 12 inches.
- 1339, 1340. PAIR OF KETTLE DRUMS. Heads braced with screws and key. Body of copper standing on three attached legs. Used for military purposes. Germany. 18th Century.
Height, 1 foot 5 inches. Diameter, 1 foot $11\frac{1}{2}$ inches.
1341. KETTLE DRUM. Body of copper, standing on three small feet. Head braced with screws, the screw plates being cut in the form of fantastic dragons. Inside, rising from a central hole, is a bell-shaped funnel for increasing the resonance of the drum. Germany. 18th Century.
Height, 1 foot $2\frac{1}{4}$ inches. Diameter, 1 foot $6\frac{1}{4}$ inches.
2539. DRUM. Long wooden barrel with heads braced with cords, the body painted with designs in gold and silver. Italy. 18th Century.
Height, 2 feet $3\frac{1}{2}$ inches. Diameter, $12\frac{1}{2}$ inches.

CASE 105 a.

306. DRUM AND STICK. Barrel of wood with heads of skin braced on the sides with cords attached to small hoops. Russia. 19th Century.
Height, $10\frac{3}{4}$ inches. Diameter, $13\frac{1}{2}$ inches.
979. TENOR DRUM. A long barrel of wood, with heads of skin braced with cords. Florence, Italy. 18th Century.
Height, 2 feet $1\frac{3}{4}$ inches. Diameter, $11\frac{3}{4}$ inches.
840. SIDE DRUM. A shallow barrel of wood, with heads of skin braced with cords, the bottom head having a snare. Hoops decorated in red, white and blue. Holland. 18th Century.
Height, 1 foot $4\frac{1}{4}$ inches. Diameter, $3\frac{1}{2}$ inches.
2524. SIDE DRUM. A shallow barrel of wood, painted in red, white and blue, with heads of skin braced on the sides with screws turned by a small key. The lower head carries a snare. Europe. 19th Century.
Height, 6 inches. Diameter, 1 foot 3 inches.
841. DRUM. A shallow barrel of wood, with heads of skin braced with cords. Teneriffe Islands (Spanish Possession). Early 19th Century.
Height, 5 inches. Diameter, $12\frac{1}{2}$ inches.
849. PAN BOMBÁ. An earthenware jar, over the open end of which a membrane is stretched having a bamboo stick passing through the centre. This instrument is played by rubbing the stick with the palms of the hands. Italy. 19th Century.
Height of jar, 7 inches. Diameter, $4\frac{1}{2}$ inches. Stick, 7 inches.
850. PAN BOMBA. Similar to preceding, except that the jar is an ordinary flower pot. This instrument has three sticks passing through the membrane, on the top of the longest of which is fastened a bell.
Height of jar, $6\frac{3}{4}$ inches. Stick, $11\frac{1}{2}$ inches.
851. PAN BOMBA. Similar to preceding, except that the body of the instrument is of tin, covered with paper. Italy. 19th Century.
Height of body, 5 inches. Diameter, $3\frac{1}{4}$ inches. Stick, $6\frac{3}{4}$ inches.

2585. ZOBO HORN. A short conical tube of brass, having at the end a vibrating membrane. By humming into the mouth-piece an effect is produced similar to that of the Onion Flute. U. S. A. Late 19th Century.

Length, $4\frac{1}{2}$ inches.

2586. ZOBO FLUTE. A small cylinder of wood pierced with one hole and having at one end a vibrating membrane. The instrument is played like the Onion Flute. U. S. A. Late 19th Century.

Length, 5 inches.

1702. ONION FLUTE or Flûte Eunuque. A conical tube of dark wood pierced with one hole, having at one end a covering of membrane over which is placed a perforated bulb. The instrument is played by humming into the hole at the side of the tube. France. 18th Century.

Length, 2 feet 9 inches.

2641. MIRLITON. Cylindrical tube of reed, closed at both ends by a thin membrane; on either side of the tube a large hole; by humming into one of which the membranes are set in motion and a curious nasal tone produced, as in the Onion Flute. France. 19th Century.

Length, $10\frac{1}{4}$ inches.

For description of Instruments in Cases 105 and 106, see Class IV, pages 220, 222.

CASE 106 a.

978. TAMBOUR DE PROVENCE. Drum. A long barrel of wood with heads of skin braced with cords. It is usually attached to the left arm, while a little pipe is played with the left hand and the drum beaten with a stick held in the right hand, as in the English pipe and tabor. France. 18th Century.

Height, 1 foot $8\frac{3}{4}$ inches. Diameter, $12\frac{1}{4}$ inches.

847. SIDE DRUM. A deep barrel of wood decorated with the arms of the City of Amsterdam, with heads of skin braced in the usual way with cords, the lower head having a snare. Holland. 18th Century.

Height, $9\frac{1}{4}$ inches. Diameter, $7\frac{1}{2}$ inches.

1391. KETTLE DRUM. Skeleton model. A hemispherical framework of metal wire, over the circular opening of which a membrane is stretched. Italy. 19th Century.
Diameter, 1 foot $2\frac{1}{4}$ inches. Depth, $9\frac{1}{4}$ inches.
842. SIDE DRUM. A shallow barrel of wood, with heads of skin braced by cords, the lower head having a snare. Used by the peasants. Valencia, Spain. 19th Century.
Diameter, $11\frac{1}{4}$ inches. Height, $7\frac{1}{4}$ inches.
852. TABOR. Drum. A shallow wooden barrel, with heads of skin braced on the sides with tapes. England. 19th Century.
Height, $3\frac{1}{2}$ inches. Diameter, $9\frac{1}{4}$ inches.
This form of Drum was used in the 16th Century at rustic dances; it was hung from the left arm and beaten with a small stick by the performer with his right hand, while with his left hand he played the three-holed pipe. The pipe and Tabor were in common use in England from the 15th to the 18th Century for the Morris dance.
853. PIPE. To accompany the Tabor, as described in the preceding note. England. 18th Century.
Length, $9\frac{1}{2}$ inches.
843. TAMBOURINE. A circular frame of wood with skin stretched over the upper edge and having 24 small metal discs inserted in the sides. Spain. 19th Century.
Diameter, $8\frac{1}{2}$ inches. Depth, $1\frac{3}{4}$ inches.

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CLASS IV. SONOROUS SUBSTANCES.

PREFACE

TO

CLASS IV. SONOROUS SUBSTANCES.

This class includes some of the most primitive forms of sound-producing instruments, though their position in the musical world has, in many instances, been improved by the ingenuity of man.

Among those in which the sound is produced by *striking* may be mentioned the xylophone or wooden harmonica, consisting of simple bars of wood of various lengths. Under the name of the *Strohfidel* it is figured in the earliest European treatise on musical instruments (*Virdung*, 1511), and in an illustrated Anglo-Saxon Psalter of the Eleventh Century (British Museum), it appears with the harp hung on the weeping willows of Babylon. To similar instruments provided with metal or glass bars, keyboards, as in the keyed Harmonicas, have been attached. Bells also, large and small, are most interesting and useful examples of musical sounds procured from natural substances by percussion.

In the Jew's Harp and Musical Box, with their metal tongues, illustration is afforded of the way in which such substances may be made to produce musical tones by *plucking*; while in the Nail Violin, invented in Russia in 1740, and in the Musical Glasses, popular in Europe in the 18th Century, the sound is obtained by

friction, the former instrument requiring the bow, the latter the finger or a pad.

In studying this class, with its simple rhythmic and musical forms, it will be instructive to compare with it the undeveloped instruments still in use among savage nations.

F. W. G.

SOME KINDRED INSTRUMENTS OF OTHER COUNTRIES¹

ILLUSTRATING

CLASS IV. SONOROUS SUBSTANCES.

The *Mokugyo*, or Wooden Fish, of Japan, No. 72, Case 8, Gallery 27.

The various gongs, metal plaques and clappers of India and China, in common use by Oriental peoples.

The *Marimba*, or Kaffir Pianos of Africa, and the Zanzes with metal tongues similar to those of the musical box; the Marimbas of Guatemala; and the rattles of the North American Indians, Gallery 28.

As the instruments in Gallery 28 are subject to classification and rearrangement, the case numbers have been omitted.

CATALOGUE

OF

CLASS IV. SONOROUS SUBSTANCES.

DIVISION I. WITHOUT A KEYBOARD.

GALLERY 25. CENTRAL CASE.

(North End.)

1820. MUSICAL GLASSES. Twenty-four glasses on feet arranged in four rows, and giving, with omissions, a scale of two octaves and two notes. England. 19th Century.

Length of case, 2 feet 11½ inches. Width, 1 foot 9½ inches. Diameter of largest glass, 5 inches; of smallest, 3 inches.

Kindly loaned by Mrs. Hearst of Washington, D. C.

1211. GLASS HARMONICA. Thirty-five hemispherical glasses arranged on a central rod. The original instrument gave a compass of three octaves, but some of the glasses are now missing. Europe. 18th Century.

Length of case, 3 feet 9½ inches. Width, 1 foot 4¾ inches. Diameter of largest glass, 10½ inches; smallest, 3½ inches.

The Glass Harmonica was invented by Benjamin Franklin.

CASE 105.

(West Wall.)

2329. XYLOPHONE, or Strohfidel. Five twists of straw laid side by side, across which 34 bars of wood are fastened at regular intervals, giving a complete chromatic scale of 2¼ octaves, with additional bars at intervals. The instrument is struck with two small hammers, one held in each hand. Switzerland. 19th Century.

Longest bar, 12 inches; shortest, 5½ inches.



No. 1211.

Glass Harmonica.

Page 220.

996. SET OF BONES. Six bones hung on a cord which passes through either end of each bone. This is a rude instrument, played by rubbing with a stick, and used to accompany the guitar. Madeira (Spanish Possession). 19th Century.

Longest bone, $5\frac{1}{2}$ inches; shortest, 4 inches.

1160. ESCHÉLETTES, or Xylophone. Sixteen small bars of wood strung on a cord, giving a diatonic scale of two octaves. France. 19th Century.

Longest, $9\frac{1}{2}$ inches; shortest, 4 inches.

1174. CASTANETS. Circular discs of wood inlaid with figures of dancers. Italy. 19th Century.

Dimensions, 2 inches by 3 inches.

1166. CASTANETS. Small discs of wood often made of Spanish chestnut (*Castanea*) fastened together with a cord and used in the dance. France. 19th Century.

Dimensions, $2\frac{1}{2}$ inches by $3\frac{1}{4}$ inches.

1167. CASTANETS. Circular discs of hard wood. France. 19th Century.

Dimensions, $2\frac{1}{4}$ inches by 3 inches.

1168. CASTANETS. Similar to No. 1167. Spain.

Dimensions, 2 inches by $2\frac{3}{4}$ inches.

1170. CASTANETS. Similar to No. 1167. France.

Dimensions, $1\frac{3}{4}$ inches by $2\frac{3}{4}$ inches.

1171. CASTANETS. Similar to preceding. Italy.

Dimensions, 2 inches by $2\frac{3}{4}$ inches.

1169. CASTANETS. Similar to preceding. Madeira (Spanish Possession).

Dimensions, $2\frac{1}{2}$ inches by $1\frac{3}{4}$ inches.

1173. CLAPPERS. Of boxwood, consisting of three mallets, the centre one stationary. Used in dancing the Tarantelle. Naples, Italy. 19th Century.

Length, $13\frac{1}{2}$ inches.

1637. CASTANETS. In this instrument a single castanet is placed on a straight wooden handle upon which it beats. Europe. 19th Century.

Length, $12\frac{1}{2}$ inches.

1108. GLOCKENSPIEL, or Harmonica. Fifteen bars of metal on a wooden frame in a box giving the diatonic scale, with ten additional bars for accidentals, sharps or flats. Germany. Early 19th Century.

Length of box, 1 foot $5\frac{1}{4}$ inches. Width, 9 inches.

993. TRIANGLE. A metal rod bent in the form of a triangle. Germany. Early 19th Century.

Length of each side, $10\frac{1}{2}$ inches.

CASE 106.

844. PANDEIRO. Jingle Ring. A circular framework of tin carrying 24 discs of the same material, arranged in pairs. Used as an accompaniment to the dance. Madeira (Spanish Possession). Early 19th Century.

Diameter of circle, $8\frac{1}{2}$ inches.

845. PANDEIRO. Jingle Ring. Similar to No. 844. This rim carries 8 small discs arranged in pairs and 4 small bells. Madeira (Spanish Possession). Early 19th Century.

Diameter, $8\frac{1}{4}$ inches. Depth, $2\frac{3}{4}$ inches.

2271. CARILLON. Chimes. A series of seven small gongs giving the diatonic scale and placed one above the other in an ornamental framework. Italy. 19th Century.

Largest gong, $2\frac{1}{4}$ inches. Smallest, $1\frac{1}{2}$ inches.

846. SCHELLENBAUM, or Chapeau Chinois. A pole surmounted by a small crescent, below which 4 bells are hung. The pole then passes through a conical piece of brass carrying 12 bells, which has given rise to the name "Chapeau Chinois"; below this are a ball and crescent, the latter bearing 4 bells and 2 horse-hair pendants, originally denoting the rank of the Pasha. Germany. Early 19th Century.

Height, 5 feet 2 inches.

The instrument, which was formerly carried before the military bands, was derived from the Janissary music of the Turks, and represented the Pasha's standard, which was borne before his regiment in battle.

2489. SCHELLENBAUM, or Chapeau Chinois. A pole surmounted by a metal crescent, below which it passes through a cone-shaped piece of brass, on which are hung small bells. Under this a crescent-shaped piece of perforated brass carries 12 other bells. Russia. 18th Century.

Height, 4 feet 2 inches. Greatest width, 2 feet $9\frac{1}{2}$ inches.

994. **JEW'S HARP.** A small metal tongue vibrating within an iron frame, which when played is placed between the lips; hence the true name of the instrument, *Jaw's Harp*. Europe. 18th Century.

Length, 3 inches. Diameter, $2\frac{1}{4}$ inches.

953. **NAGELGEIGE.** Nail Violin. A circular sound-box of wood, in the circumference of which are inserted a double row of iron pins, which, when vibrated by a violin bow, give on one side a scale of four octaves, C to C, the lower three octaves chromatic, the upper diatonic, and on the other side the diatonic scale of three octaves, F to F. Across the sound-box were stretched sympathetic strings (now missing) to assist the vibration. Centre of the sound-board decorated with a triple rose. Germany. 18th Century.

Diameter of sound-box, 12 inches.

The Nail Violin was invented in Russia in 1740 by the violinist Wilde.

954. **NAGELGEIGE.** Hemispherical sound-box of wood, in the circumference of which is placed a single row of 30 pins, giving a scale of two octaves and a fourth from C to F. This instrument is played with a rough-haired bow, the sharps being indicated by the bent pins, the naturals by the straight. Germany. Early 19th Century.

Diameter of sound-box, 9 inches.

2128. **NAGELGEIGE.** A double sound-board carrying 37 iron staples, giving a complete chromatic scale of two octaves and a fifth. This is supposed to be an improved form of the nail violin. Germany. c. 1840.

Diameter, 1 foot $2\frac{1}{2}$ inches. Height, $5\frac{1}{4}$ inches.

2525. **CYMBALS.** Of thin brass, with a central boss. Europe. Early 18th Century.

Diameter, 1 foot 3 inches.

1661. **GLASS HARMONICA.** A small quadrangular box, in a case, inlaid with black and white, on which are placed 15 strips of glass, giving a diatonic scale of two octaves from C to C. The glasses are struck with two small cork hammers. England. Late 18th Century.

Box—Length, 1 foot 8 inches. Width, 6 to $4\frac{1}{4}$ inches. Harmonica—Length, 1 foot 6 inches. Width, $4\frac{1}{4}$ inches to $2\frac{1}{4}$ inches.

For description of No. 2497, Class IV, Division III, see page 240.

CASE 107.

1640. **MASS BELL.** A shallow circular bell of brass, with a broad flat handle and three feet. Around the edge an inscription, "Gloria Soli Deo." Four inner bells. Flanders.
Diameter, 6 inches. Depth, 2 inches.
2123. **MASS BELL.** White Metal. Surface ornamented with geometric design in repoussé. Broad flat handle. Four inner bells. Flanders.
Diameter, 6 inches. Depth, 4 inches.
1592. **MASS BELL.** Thin Brass. Perforated design. Handle a large ring. Inner bells missing. Flanders.
Diameter, $5\frac{1}{4}$ inches. Depth, 4 inches.
1591. **MASS BELL.** Thin Brass. Slightly Conical. Ring handle. Inner bell missing. Flanders.
Diameter, 5 inches. Depth, 2 inches.
1719. **MASS BELL.** Thin Brass. Perforated design. Handle an iron ring. Four inner bells. Flanders.
Diameter, $4\frac{1}{2}$ inches. Depth, $2\frac{1}{2}$ inches.
1517. **BELL.** Bronze, ornamented with festoons in relief. Clapper, Italy.
Height, 6 inches. Diameter, $5\frac{1}{2}$ inches.
1604. **BELL.** Bronze. Body ornamented with medallions of Christ and the Virgin Mary; on one side a coat of arms. The handle finished with a head. Clapper. Venice, Italy.
Height, $8\frac{1}{2}$ inches. Diameter, 5 inches.
1518. **BELL.** *Medici Bell.* Bronze. The surface ornamented on two sides with medallions of monks' heads. On a third side a crucifix and on the fourth a coat of arms. A slender handle. Clapper. Italy.
Height, 6 inches. Diameter, $5\frac{1}{2}$ inches.
1603. **BELL.** Bronze. Ornament in relief with inscription at the top. "Antonio Ottobelli do (no) meo D (edi),"—"I, Antonio Ottobelli, have given this as my gift." A thick wooden handle. Clapper. Italy.
Height, $9\frac{3}{4}$ inches. Diameter, $3\frac{3}{4}$ inches.



Cases 107, 108.

Bells.

Pages 224, 232.

2490. BELL. Brass. A long, narrow double bell in which is hung a bell of smaller dimensions, having a clapper. These bells fell into disuse during the last century. Servia.
Height of outside bell, $7\frac{1}{4}$ inches; diameter, 4 inches. Height of inside bell, $3\frac{1}{4}$ inches; diameter, 2 inches.
1893. BELL. Brass, without ornament. Russia.
Height, $4\frac{3}{4}$ inches. Diameter, $4\frac{3}{4}$ inches.
1162. BELL. *St. Peter's Bell*. Bronze. Ornamental bands in relief and a procession of draped figures. The top of the bell has a globular ornament supported by eight dolphins. Italy.
Height, $5\frac{5}{8}$ inches. Diameter, $3\frac{3}{8}$ inches.
1342. BELL. Antique bronze, without ornament. A curious square wooden handle has the following inscriptions: On one side, "Wolfgang neblich 1599." On the other side, "Spirensis est possessor) huguis cam (pantæ)."
Height, $5\frac{1}{2}$ inches. Diameter, $2\frac{1}{2}$ inches.
2318. BELL. Bronze, ornamented with medallions on two sides. On each of the opposite sides is a cross.
Height, 4 inches. Diameter, 4 inches.
2373. BELL. Thin metal with elaborate repoussé ornament. No clapper and no handle. Inscription, "Io(hannes) Iacobus Malhabia, MDLXI." Reproduction. Original in the South Kensington Museum, London. Italy.
Height, $4\frac{1}{4}$ inches. Diameter, $4\frac{1}{2}$ inches.
1892. BELL. Brass. Without ornament. The clapper a ring hung on a chain. Inscription about the base illegible. Russia.
Height, 4 inches. Diameter, $4\frac{1}{2}$ inches.
1607. BELL. Bronze. Surface ornamented with festoons and a procession of children bearing torches and shields, in relief. The handle a standing figure without arms. Clapper. Venice, Italy.
Height, $7\frac{1}{4}$ inches. Diameter, $3\frac{1}{8}$ inches.
1608. BELL. Brass. Handle of openwork ornament. Clapper. Venice, Italy.
Height, $5\frac{1}{2}$ inches. Diameter, 3 inches.
1584. BELL. Faïence pottery. Handle the figure of a dancer. Wooden clapper. France.
Height, $5\frac{1}{4}$ inches. Diameter, $2\frac{3}{4}$ inches.

1880. BELL. Bronze, the entire surface ornamented with design of grape-vine in high relief. The handle half-length figure of Bacchus. Clapper. Russia.
Height, $4\frac{3}{8}$ inches. Diameter, $2\frac{3}{4}$ inches.
1583. BELL. Bronze. Body of bell ornamented with procession of warriors in low relief, an elephant bearing trophies, a prisoner walking alongside. Europe. Clapper missing.
Height, 4 inches. Diameter, 3 inches.
1889. BELL. Brass. A small circular bell resting on a tripod of three horses' hoofs, and surmounted by a group of horses' heads and whips. Russia.
Height, 5 inches. Diameter, 3 inches.
1886. BELL. Brass. Similar to 1892, with inscription which is illegible. Russia.
Height, $3\frac{5}{8}$ inches. Diameter, 3 inches.
2374. BELL. Copper, with ornament in low relief. Clapper missing. Reproduction; original (16th Century), in the South Kensington Museum, London. Italy. Inscription, "*Pulso meo servos voco libomano tuos*," *i.e.*, "By my stroke I call thy servants to the libation."
Height, $2\frac{3}{4}$ inches. Diameter, $3\frac{3}{4}$ inches.
1882. BELL. Bronze. The body ornamented with bands of incised ornament, the handle a bee. Clapper. Russia.
Height, $3\frac{1}{4}$ inches. Diameter, $2\frac{3}{4}$ inches.
1178. COSTUME BELL. Bronze. A Dancer. France, 1810.
Height, $4\frac{1}{2}$ inches. Diameter, 2 inches.
1179. COSTUME BELL. Bronze. A figure in costume of the period of Louis XVI. Hair pompadour, a neck handkerchief about the shoulders; right arm raised. France.
Height, 4 inches. Diameter, 2 inches.
1186. COSTUME BELL. Bronze. Figure with hair dressed high, hands folded in front. France.
Height, $3\frac{5}{8}$ inches. Diameter, $1\frac{3}{4}$ inches.
1185. COSTUME BELL. Bronze. Figure in a large hat with feathers; a bag on the right arm, a cane in the left hand. Clapper. France.
Height, 4 inches. Diameter, $2\frac{1}{2}$ inches.

1183. COSTUME BELL. Bronze. Voltaire in the costume of Mme. Denis. Clapper. France.
Height, 4 inches. Diameter, 2 inches.
2159. COSTUME BELL. Bronze. Figure with coronet and holding a book or fan in right hand; epaulets on shoulders. Clapper. Europe.
Height, $4\frac{1}{4}$ inches. Diameter, 2 inches.
1887. BELL. Bronze, gilt finish. Figure holding a bottle in left hand. Clapper. Russia.
Height, $4\frac{1}{4}$ inches. Diameter, $2\frac{3}{4}$ inches.
1163. COSTUME BELL. White metal. Figure with an elaborate head-dress, and holding a handkerchief in right hand. Clapper. Nuremberg, Germany.
Height, $4\frac{1}{2}$ inches. Diameter, $2\frac{1}{4}$ inches.
1885. COSTUME BELL. Bronze. Figure of a dancer with arms raised. Clapper. Russia.
Height, 4 inches. Diameter, $1\frac{3}{4}$ inches.
1128. COSTUME BELL. Bronze. Figure with coronet; a ruff about the neck and costume with puffed sleeves; hands on the hips. Clapper. France.
Height, $3\frac{1}{4}$ inches. Diameter, $1\frac{3}{4}$ inches.
1873. BELL. Bronze, gilt finish. Body of the bell modeled in the form of a rose, the stem forming the handle. Clapper. Russia.
Height, $3\frac{1}{2}$ inches. Diameter, 2 inches.
1594. BELL. Bronze, green finish, the handle a stork. Clapper missing. Reproduction. Pompeii, Italy.
Height, 6 inches. Diameter, 2 inches.
1578. BELL. Bronze. Figure of Napoleon in uniform. Clapper. Europe.
Height, $4\frac{1}{2}$ inches. Diameter, $2\frac{3}{8}$ inches.
2172. BELL. Bronze. Similar to Japanese bells. Upper part of body divided into sections and ornamented with knobs. Russia.
Height, $3\frac{1}{2}$ inches. Diameter, 2 inches.
1579. BELL. Bronze. Body of bell ornamented with incised bands, the handle a head with cocked hat. Europe.
Height, 4 inches. Diameter, $2\frac{1}{4}$ inches.

1580. BELL. Brass. A small conical bell, smooth surface without ornament, a ring in the top. Clapper. Europe.
Height, $3\frac{1}{2}$ inches. Diameter, $2\frac{1}{2}$ inches.
1876. BELL. The body a small barrel, the handle a dancing bear. Clapper. Russia.
Height, $4\frac{1}{4}$ inches. Diameter, $1\frac{1}{2}$ inches.
1581. BELL. Brass, smooth surface without ornament, a ring at the top. Clapper. Europe.
Height, $3\frac{1}{4}$ inches. Diameter, $1\frac{7}{8}$ inches.
1867. BELL. Brass. Small conical bell, with short, tapering handle. Russia.
Height, $3\frac{3}{8}$ inches. Diameter, 2 inches.
1872. BELL. Brass. Body ornamented with incised bands. Small, bulbous handle. Clapper.
Height, 3 inches. Diameter, $2\frac{1}{2}$ inches.
1874. BELL. White metal. Surface without ornament. Russia.
Height, $2\frac{3}{4}$ inches. Diameter, $2\frac{1}{2}$ inches.
1870. BELL. Brass. Surface without ornament, handle a small ring. Russia.
Height, $2\frac{3}{4}$ inches. Diameter, $2\frac{1}{8}$ inches.
1864. BELL. Brass. Smooth surface, slender handle. Clapper. Russia.
Height, $3\frac{1}{4}$ inches. Diameter, $1\frac{3}{4}$ inches.
1868. BELL. Brass. Surface decorated with bands of color. Clapper. Inscription illegible. Russia.
Height, $2\frac{1}{2}$ inches. Diameter, $1\frac{1}{4}$ inches.
1865. BELL. Brass. A small conical bell, smooth surface ornamented with bands of color. Clapper. Russia.
Height, 3 inches. Diameter, 2 inches.
1722. BELL. Bronze. A small bell, without ornament. Italy.
Height, $2\frac{1}{4}$ inches. Diameter, $1\frac{1}{2}$ inches.
1723. Bell. Brass, without ornament. Italy.
Height, $1\frac{3}{4}$ inches. Diameter, $1\frac{3}{4}$ inches.

1696. BELL. *Pope's Bell*. Pewter. Surface worn and dented. On one side is a crucifix, on the other sides the Apostles and the Virgin. Inscription at base illegible. Clapper. Europe. Height, 2 inches. Diameter, $1\frac{1}{4}$ inches.
1697. MASS BELL. Inner part. Bronze, the edge badly broken, the clapper missing and ornament defaced. Europe. Height, 2 inches. Diameter, $1\frac{1}{2}$ inches.
1862. BELL. Brass, ornamented with bands of color. Clapper. Russia. Height, 1 5-16 inches. Diameter, $1\frac{1}{4}$ inches.
1863. BELL. Brass, without ornament. Clapper. Russia. Height, $1\frac{1}{4}$ inches. Diameter, $1\frac{1}{4}$ inches.
1861. BELL. Brass, similar to 1863. Russia. Height, $1\frac{1}{4}$ inches. Diameter, 1 3-16 inches.
1860. BELL. *Cat Bell*. Brass, similar to 1863. Russia. Height, 1 inch. Diameter, 1 inch.
2429. BELL. Antique Bronze; surface corroded. Square at the base, tapering toward the top, where the corners are rounded. Clapper missing. Excavated at Padua, Italy. Height, 3 inches. Diameter, $1\frac{3}{4}$ inches.
1811. BELL. Antique Bronze. Originally hexagonal at base and tapering toward the top. Clapper missing. Italy. Height, $2\frac{1}{2}$ inches.
1934. BELL. Antique Bronze. Clapper missing. Rome, Italy. Height, 2 inches. Diameter, $1\frac{1}{4}$ inches.
1933. BELL. Antique Bronze. Clapper missing. Rome, Italy. Height, $2\frac{3}{4}$ inches. Diameter, 1 5-16 inches.
1164. BELL. Antique Bronze. Clapper missing. Excavated at Cologne. Rome, Italy. Height, $1\frac{3}{4}$ inches. Diameter, $1\frac{1}{4}$ inches.
1935. BELL. Antique Bronze. Clapper missing. Rome, Italy. Height, 2 inches. Diameter, $1\frac{1}{4}$ inches.

1165. BELL. Antique Bronze. Square at the base, tapering toward the top. Clapper missing. Excavated at Cologne. Rome, Italy.
Height, $1\frac{3}{4}$ inches. Diameter, $1\frac{1}{2}$ inches.
1936. BELL. Antique Bronze. Clapper missing. Rome, Italy.
Height, $1\frac{3}{4}$ inches. Diameter, $1\frac{1}{8}$ inches.
1613. BELL. Antique Bronze. Square at the base, tapering toward the top. Clapper. Rome, Italy.
Height, $1\frac{3}{8}$ inches. Diameter, $1\frac{1}{4}$ inches.
1812. BELL. Antique Bronze. Square at the base and tapering toward the top. Clapper missing.
Height, $1\frac{1}{2}$ inches. Diameter, $\frac{3}{4}$ inch.
1937. BELL. Antique Bronze. Hemispherical, with short, straight handle. Rome, Italy.
Height, $1\frac{1}{4}$ inches. Diameter, 1 inch.
1938. BELL. Antique Bronze. Conical, with a ring at the top. Clapper missing. Rome, Italy.
Height, 1 inch. Diameter, $\frac{3}{4}$ inch.
2111. BELL. *Centurion's Bell*. Antique Bronze. Hemispherical. No clapper. Rome, Italy.
Height, $\frac{3}{4}$ inch. Diameter, 9-16 inch.
This bell was one of a set of bells worn by a Roman sentry on his breast-plate, so that the Centurion might know from the sound that the sentry was faithful to his duty.
1796. RING RATTLE. Antique Bronze. A ring on which are hung three smaller rings; on one side a terra-cotta knob where the ring is held. Italy.
Diameter of bell, 6 inches.
1742. RING OR BRACELET RATTLE. Antique Bronze.
A ring on which are hung three smaller rings. Italy.
Diameter, $4\frac{1}{4}$ inches.
1614. BRACELET BELL. Antique Bronze. Rome, Italy.
Diameter of bell, $2\frac{1}{4}$ inches. Diameter of ring, $\frac{3}{4}$ inches.
2603. BELL. Bronze. Base divided into four scallops, 17th Century.
Height, $3\frac{3}{4}$ inches. Diameter, 2 inches.

CASE 107 a.

1417. COW BELL. Metal, oblong in shape. Holland.
Height, $6\frac{1}{4}$ inches. Width, $4\frac{3}{4}$ inches. Depth, $6\frac{1}{2}$ inches.
1708. COW BELL. Similar to preceding. Austria.
Height, $6\frac{3}{4}$ inches. Width, 5 inches. Depth, $3\frac{1}{2}$ inches.
1161. COW BELL. Similar to preceding. Switzerland.
Height, 6 inches. Width, $6\frac{3}{4}$ inches. Depth, $4\frac{1}{2}$ inches.
These bells are highly prized by the Swiss peasants, and descend in families from generation to generation.
1576. COW BELL. Similar to preceding. Switzerland.
Height, $4\frac{1}{4}$ inches. Width, 3 inches.
1720. COW BELL. Similar to preceding. Tyrol.
Height, $4\frac{1}{4}$ inches. Width, 3 inches.
1582. ANIMAL BELL. Similar to preceding. Europe.
Height, $2\frac{1}{4}$ inches. Width, 2 inches.
1810. ANIMAL BELL. Similar to preceding. Switzerland.
Height, $3\frac{1}{4}$ inches. Width, $2\frac{3}{4}$ inches.
2550. COW BELL. Copper. This instrument and the four following form a "Peal of Cattle Bells." Germany.
Height, $8\frac{1}{4}$ inches. Width, 4 inches.
2551. COW BELL. Similar to preceding. Germany.
Height, $7\frac{3}{4}$ inches. Width, $3\frac{3}{4}$ inches.
2552. COW BELL. Similar to preceding. Germany.
Height, $4\frac{1}{2}$ inches. Width, $2\frac{1}{2}$ inches.
2553. COW BELL. Similar to preceding. Germany.
Height, $4\frac{1}{2}$ inches. Width, 3 inches.
2554. COW BELL. Similar to preceding. Germany.
Height, $5\frac{3}{4}$ inches. Width, $3\frac{3}{4}$ inches.
2555. COW BELL. Similar to preceding. Germany.
Height, $6\frac{3}{4}$ inches. Width, $3\frac{1}{2}$ inches.
2156. HORSE BELL. Bronze, globular in shape. One of a peal. France.
Diameter, $5\frac{1}{2}$ inches.

2157. HORSE BELL. Similar to preceding. One of a peal.
Diameter, $4\frac{1}{2}$ inches.
2158. HORSE BELL. Similar to preceding. One of a peal.
France.
Diameter, $4\frac{1}{2}$ inches.
2091. BELL. Bronze, similar in shape to preceding. Used
by postilions. Europe.
Diameter, $4\frac{1}{2}$ inches.

CASE 108.

1641. MASS BELL. Thin brass. Perforated design. One
small inner bell, others missing. Dated, 1672. Belgium.
Height, $4\frac{1}{2}$ inches. Diameter, $8\frac{1}{4}$ inches.
1638. MASS BELL. Thin brass, slightly conical. Perforated
band. Four inner bells. Flanders.
Height, $6\frac{1}{4}$ inches. Diameter, $1\frac{1}{4}$ inches.
1639. MASS BELL. A shallow circular bell of thin brass,
ornamented with bands of leaves in repoussé. Broad, flat handle
and three small feet. Three inner bells. Flanders.
Height, $6\frac{3}{4}$ inches. Diameter, $5\frac{1}{2}$ inches.
1590. MASS BELL. A circular bell of brass, slightly conical,
with three ornamental feet. One inner bell, others missing. Ex-
terior ornamented with a medallion of the Madonna, and on the
opposite side a coat of arms. Flanders.
Height, $6\frac{1}{2}$ inches. Diameter, 7 inches.
2153. BELL. Bronze, with long, heavy clapper. Three medal-
lions in relief on exterior; one of the Crucifixion. France.
Height, $8\frac{1}{2}$ inches. Diameter, $8\frac{1}{2}$ inches.
1662. BELL. Heavy bronze, having a broad, flat handle.
The exterior is ornamented with two bands of conventional floral
design in low relief. A heavy clapper. Europe.
Height, 8 inches. Diameter, $9\frac{1}{2}$ inches.
1125. BELL. Rudely finished pottery, conical, with ring
handle. Pottery clapper. Italy.
Height, 8 inches. Diameter, $6\frac{1}{2}$ inches.

1596. BELL. Faïence pottery. A grotesque figure in pointed cap, the chin resting on finger of left hand. Clapper. France.
Height, 8 inches. Diameter, $4\frac{1}{2}$ inches.
1606. BELL. Bronze. The body of the bell ornamented with design in low relief of festoons of oak-leaves, below which are heads of warriors. A figure in armor serves as handle. Clapper. Italy.
Height, $6\frac{1}{2}$ inches. Diameter, $4\frac{3}{4}$ inches.
1605. BELL. Bronze. The body of the bell encircled with a band of openwork ornament made up of scroll work and cherub heads. The handle a standing figure, considerably worn, the lower part broken. Clapper. Italy.
Height, $6\frac{1}{8}$ inches. Diameter, 4 inches.
1721. BELL. Bronze. The body of the bell ornamented with heads of saints, also of the Virgin and St. Joseph, below which is a band of ornament in low relief. Clapper. Italy.
Height, $6\frac{1}{2}$ inches. Diameter, $3\frac{5}{8}$ inches.
2317. BELL. Bronze. Surface ornamented but worn away by age. The handle a slender standing figure. Clapper. Inscription: "Me fecit Johannes A. Fine A(nno) 1550." Italy.
Height, 6 inches. Diameter, $3\frac{1}{2}$ inches.
1478. BELL. Bronze. The body ornamented with four medallions and design in open work. The handle represents a figure holding a book under the right arm. Inscription: "Nichts Zuriel." Clapper. Nuremberg, Germany.
Height, $6\frac{1}{2}$ inches. Diameter, $3\frac{1}{2}$ inches.
1642. BELL. Bronze. Surface ornamented in low relief. Inscription around the top: "Boven al lof Got." At the base: "Petrus Gheineus me fecit, 1566." Europe.
Height, 5 inches. Diameter, $3\frac{1}{4}$ inches.
1577. BELL. Bronze. Surface elaborately ornamented in high relief. The handle a draped figure seated. Clapper. Europe.
Height, $5\frac{3}{4}$ inches. Diameter, $3\frac{1}{4}$ inches.
1890. BELL. Brass. An inscription at the base, many letters of which are effaced. Date, 1807. Clapper. Russia.
Height, $3\frac{1}{2}$ inches. Diameter, $3\frac{3}{4}$ inches.

1891. BELL. Brass. The surface ornamented in low relief with hunting scene and foliage. The handle a graceful scroll ornament. Clapper. Russia.
Height, 7 inches. Diameter, $3\frac{1}{2}$ inches.
1602. BELL. Bronze. Surface ornamented in low relief with design of foliage and cherubs. The body of the bell is surmounted by a group of three cherubs. At the top is the inscription: "Van al lof Goot" (imperfect); at the bottom: "Me fecit Johannes a fine a—." Clapper. Europe.
Height, 5 inches. Diameter, $3\frac{1}{4}$ inches.
1888. BELL AND TRIPOD. A small brass tripod in which is suspended a bell. Russia.
Height of tripod, $6\frac{1}{4}$ inches. Height of bell, 2 inches. Diameter, $2\frac{1}{4}$ inches.
1677. BELL. Thin brass. Perforated scroll design. About the edge are inscribed the words: Mathew, Marc, Lucas, Johannes. Clapper. France.
Height, $3\frac{3}{4}$ inches. Diameter, $3\frac{1}{8}$ inches.
1601. BELL. Bronze. Bands of geometric ornament at the top and bottom, shields and eagles on opposite sides. Clapper. Europe.
Height, 4 inches. Diameter, 3 inches.
1176. BELL. Bronze, silver-gilt. Body ornamented at the base with band of oak-leaves and acorns, above which are festoons. The handle is a small lyre. Clapper. France.
Height, $3\frac{1}{2}$ inches. Diameter, $2\frac{3}{4}$ inches.
1177. BELL. Bronze, with gilt finish. The body ornamented with a procession of warriors, one carrying a Roman Bucina, in low relief. The handle the figure of a flower girl. Clapper. France.
Height, 7 inches. Diameter, $2\frac{7}{8}$ inches.
1184. COSTUME BELL. Bronze. The figure of an old woman with a cane, carrying a dog under her right arm. The head of the figure forms the handle, and is attached to the clapper. 18th Century. France.
Height, $4\frac{3}{4}$ inches. Diameter, $2\frac{3}{8}$ inches.
1182. COSTUME BELL. Bronze. Daughter of Louis XVI. A child seated on a divan with a doll in right arm. The head of the figure forms the handle, and is attached to the clapper. France.
Height, $4\frac{1}{4}$ inches. Diameter, $2\frac{5}{8}$ inches.

1181. **COSTUME BELL.** Bronze. A figure wearing a large hat with roses under the brim; arms folded and a rose in the left hand. Clapper. 1813. France.
Height, $4\frac{1}{2}$ inches. Diameter, $2\frac{1}{8}$ inches.
1180. **COSTUME BELL.** Bronze. The figure of Napoleon in military cloak. France.
Height, $4\frac{1}{8}$ inches. Diameter, $1\frac{7}{8}$ inches.
1881. **BELL.** Bronze. Surface without ornament. Clapper. Russia.
Height, $4\frac{1}{2}$ inches. Diameter, $3\frac{1}{4}$ inches.
1879. **BELL.** Bronze. Surface ornamented in high relief with design of birds and flowers. Clapper. Russia.
Height, $4\frac{3}{4}$ inches. Diameter, $2\frac{1}{2}$ inches.
1883. **BELL.** Brass. Surface without ornament. Clapper a metal ring. Russia.
Height, $3\frac{3}{4}$ inches. Diameter, 3 inches.
1878. **BELL.** Bronze, gilt finish. Surface ornamented with design of oak-leaves and acorns in high relief. Russia.
Height, 4 inches. Diameter, $2\frac{7}{8}$ inches.
1884. **BELL.** Brass. Surface without ornament. The mark "3 lb" on one side. A large metal ring in the top. Russia.
Height, $3\frac{3}{8}$ inches. Diameter, $2\frac{5}{8}$ inches.
1593. **BELL.** Brass. The surface ornamented with bands of geometric design, between which there are bands resembling fish-scales. A ring handle. Europe.
Height, 4 inches. Diameter, $2\frac{3}{4}$ inches.
1877. **BELL.** Bronze, gilt finish. Figure of a native in long coat and wearing Russian hat. Clapper. Russia.
Height, 4 inches. Diameter, $2\frac{1}{2}$ inches.
1127. **BELL.** Bronze. A grotesque horned head, from the top of which protrudes a hand clinching a short rod. Clapper. Italy. 16th Century.
Height, $3\frac{1}{2}$ inches. Diameter, $2\frac{3}{8}$ inches.
2092. **BELL.** Bronze. Hemispherical, without ornament. Three clappers hung on chains. Russia.
Height, $2\frac{1}{4}$ inches. Diameter, 3 inches.

1875. BELL. Bronze, nickel-plated. Without ornament.
Clapper, Russia.
Height, $2\frac{3}{4}$ inches. Diameter, $2\frac{5}{8}$ inches.
1866. BELL. Brass. Surface ornamented with geometric design in relief. Slender handle. Clapper. Russia.
Height, 4 inches. Diameter, $2\frac{1}{4}$ inches.
1871. BELL. Brass, without ornament. Inscription defaced.
Clapper.
Height, $2\frac{3}{4}$ inches. Diameter, $2\frac{3}{8}$ inches.
1869. BELL. Similar to preceding. Inscription defaced.
Clapper. Russia.
Height, $2\frac{5}{8}$ inches. Diameter, 2 inches.
1929. BELL. Antique Bronze. No clapper. Rome, Italy.
Height, $3\frac{3}{8}$ inches. Diameter, $2\frac{1}{8}$ inches.
1309. BELL. Similar to preceding. Rome, Italy.
Height, 3 inches. Diameter, 2 inches.
1932. BELL. Similar to preceding. Rome, Italy.
Height, $2\frac{3}{4}$ inches. Diameter, $1\frac{5}{8}$ inches.
1420. BELL. Antique Bronze, a ring on the top. Clapper.
Greece.
Height, 3 inches. Diameter, 2 inches.
1525. BELL. Antique Bronze. With clapper. Rome, Italy.
Height, $4\frac{1}{4}$ inches. Diameter, $2\frac{1}{2}$ inches.
1610. BELL. Antique Bronze. No clapper. Pompeii, Italy.
Height, $4\frac{1}{2}$ inches. Diameter, $2\frac{1}{4}$ inches.
1644. BELL. Antique bronze, surface corroded and broken.
The inscription, "*Ορον*" ("I strike the time"). Greece.
Height, 5 inches.
1526. BELL. Antique Bronze. No clapper. Rome, Italy.
Height, $3\frac{3}{4}$ inches. Diameter, $2\frac{1}{4}$ inches.
1611. BELL. Antique Bronze. No clapper. Surface broken.
Pompeii, Italy.
Height, $3\frac{1}{4}$ inches. Diameter, $2\frac{3}{8}$ inches.
1931. BELL. Antique Bronze. No clapper. Rome, Italy.
Height, 3 inches. Diameter, $1\frac{3}{4}$ inches.

1930. BELL. Antique Bronze. Square. No clapper. Rome, Italy.
Height, $2\frac{3}{4}$ inches. Diameter, $2\frac{1}{4}$ inches.
1612. BELL. Antique Bronze. Square. No clapper. Rome, Italy.
Height, $2\frac{3}{8}$ inches. Diameter, $2\frac{1}{4}$ inches.
2171. BELL AND STAND. Gilt, decorated with engraved bands, and supported on an ornamental stand. The handle a small figure bearing a crystal ball on the head. Russia.
Height, 7 inches. Diameter, $2\frac{3}{4}$ inches. Height of stand, 4 inches. Diameter, $3\frac{1}{2}$ inches.
2319. BELL AND TRAY. Bronze, with scroll ornament in relief, resting on a tray similarly decorated. The handle a figure in armor. Italy.
Height, 5 inches. Diameter, $2\frac{3}{4}$ inches. Diameter of tray, $5\frac{3}{4}$ inches.
2488. BELL. Bronze, gilt finish. Reproduction in miniature of the great bell, "Czar Kolokol," Kremlin, Moscow. This bell, called the "King of Bells," is the largest ever made; it was cast in 1733, and weighs about 440,000 lbs. It is 19 feet in diameter, and the same in height. Russia.
Height, $6\frac{1}{4}$ inches. Diameter, 4 inches.
2761. BELL. Bronze, with geometric ornaments in relief, a coat of arms on one side, a group of cherubs forming the handle. Europe. 19th Century.
Height, 8 inches. Diameter, $3\frac{3}{4}$ inches.

CASE 108 a.

1388. BELL. A large, bulbous bell of metal, clapper missing. An old specimen. Florence, Italy.
Width, 1 foot 6 inches. Depth, 10 inches. Height, 1 foot 4 inches.
1575. COW BELL. Shape and material similar to preceding, with clapper. Switzerland.
Width, 1 foot 5 inches. Depth, 9 inches. Height, 1 foot 2 inches.

1571. SHEEP BELL. Similar to preceding in shape and material, but of smaller size. Oxfordshire, England.
Width at base, 3 inches. Height, $2\frac{3}{4}$ inches.
1574. COW BELL. Similar to preceding, with clapper, and fastened to a leather collar. Switzerland.
Width, 7 inches. Depth, 4 inches. Height, 8 inches. Length of collar, 35 inches. Width, 3 inches.
1609. COW BELL. Similar to preceding, with clapper. Austria.
Width, $8\frac{1}{2}$ inches. Height, 7 inches.
2154. HORSE BELL. Bronze, globular in shape. One of a peal. France.
Diameter, 8 inches.
1126. BELL. Similar to preceding. Oxfordshire, England.
Diameter, $6\frac{1}{2}$ inches.
2155. HORSE BELL. Similar to No. 2154. One of a peal. France.
Diameter, $5\frac{1}{2}$ inches.

LARGE BELLS ON PEDESTALS.

2511. BELL. Bronze. Inscription near the top: "San Mehizo en Cadiz. Juan Perrez. Ano D. 1773." Spain.
Diameter at base, 1 foot 9 inches. Height, 2 feet 1 inch.
Presented by Thos. J. Owens & Co., 1884.
2097. BELL. Bronze. Relic of the Spanish-American War. From a monastery in Cuba. Cast at Barcelona, Spain, 1848.
Diameter at base, 2 feet 2 inches. Height, 2 feet 4 inches.

Sonorous Substances with a Keyboard (Division II) are placed in the Central Case (North End) of this Gallery.

CLASS IV. SONOROUS SUBSTANCES.**DIVISION II. WITH A KEYBOARD.****GALLERY 25. CENTRAL CASE.****(North End.)**

1201. PIANO HARMONICA. An oblong walnut case. Compass five octaves, A to A. The hammers strike on metal tongues similar to those used in a musical box. Keys, ivory naturals with black sharps. England. Late 19th Century. Makers, B. Cramer & Co.
Length, 3 feet. Width, 1 foot 6 inches. Depth, 9 inches.
1210. GLOCKENSPIEL. Compass two octaves—C to C. A small square walnut case containing twenty-five hemispherical gongs which, on pressing the keys, are struck by little hammers. Keys, white naturals with black sharps. Europe. 19th Century.
Length, 1 foot 7½ inches. Width, 1 foot 6 inches. Depth, 10½ inches.
Drexel Collection.
1202. GLASSICHORD. Compass three octaves—C to C. A small square walnut case resting on a fancy stand. Keys, white naturals with black sharps. The hammers strike small plates of glass arranged in two rows. U. S. A. 19th Century. Maker unknown.
Length, 2 feet 3 inches. Width, 1 foot 7½ inches. Depth, 8 inches.

Sonorous Substances with Automatic Mechanism (Division III) are placed in Case 106, West side of this Gallery.

CLASS IV. SONOROUS SUBSTANCES.

DIVISION III. AUTOMATIC MECHANISM.**GALLERY 25. CASE 106.****(West Wall.)**

The instruments in this case not described under this section will be found with Class IV, Division I, page 222.

2497. **MUSICAL BOX.** Compass, 60 notes. A small black case in the form of a snuff box, the outside of the cover ornamented with a raised view of the Castle of Chillon. Within, a piece of horn protects the mechanism. A metal barrel set in motion by a spring, wound by a key from the outside, plucks the steel tongues. Switzerland. Early 19th Century.

Length, $3\frac{1}{2}$ inches. Width, $2\frac{1}{2}$ inches.

CLASS V. MUSICAL ACCESSORIES.

PREFACE

TO

CLASS V. MUSICAL ACCESSORIES.

This class includes those adjuncts of the musical art which, although they cannot be included in the foregoing classes, conduce nevertheless to its enjoyment and study, or show the application of the power of sound to the needs of daily life.

Under this latter head we may class the speaking trumpets, which, although they may at first sight appear to belong to the cup-mouthpiece section, are merely used for magnifying the power of the natural voice.

In this class are also included musical treatises, instruction books for the various instruments and specimens of notation; and, as a knowledge of the man contributes to our appreciation of his work, a series of portraits of famous musicians is incorporated in the collection.

F. W. G.

CATALOGUE
OF
CLASS V. MUSICAL ACCESSORIES.

I. PERTAINING TO STRINGED INSTRUMENTS.

GALLERY 26. CASE 68.

(East Wall.)

1066. PANDURINA CASE. A moulded pear-shaped box, covered with black paper and mounted with metal fastenings. Interior painted yellow. Italy. 18th Century.
Length, 2 feet. Width, $8\frac{1}{4}$ inches. Depth, 6 inches.

CASE 78.

(West Wall.)

2391. VIOL BRIDGE and TAIL-PIECE in carved ivory. Rome, Italy. 17th Century.
Length, 4 inches.
1814. VIOL NECK with open peg-box and carved blind-folded head. Peg-holes for 5 strings. Germany. 18th Century.
Length, 12 inches.

CASE 80.

(West Wall.)

- 2694.¹ COLLECTION OF BOWS arranged in the order of their historic development.
- (a). PRIMITIVE BOW. Consisting of a long stick with serrated edge. This form is still used in country dances in France for the rustic *Bumbass*.

¹ See Preface to Stringed Instruments, "Section C, Bowed Strings," page 13.

- (b). BOW. 12th century model. Horse-hair attached to a bent stick, provided with a short handle. This bow is still used with the *Gusla*, or Servian Fiddle.
- (c). BOW. 14th century model. Straight stick of wood, with sharply curved handle. The hair is tightened by the insertion of two fingers between it and the stick.
- (d). BOW. Early 17th century model. A curved stick of wood, terminating in a small head, from which the hair passes to a block of wood, sliding on the curved stick and tightened by means of a wire slipping over ratchet points on the upper side of the stick. This was, until recently, used with the *Hardanger Violin*.
- (e). BOW. Late 17th century model. Slightly curved stick of wood, terminating in a small head, from which the hair passes to a block of wood, tightened by means of a screw.
- (f). BOW. Early 18th century model. Polished wooden stick, the curve being very slightly inward, instead of outward, as in the previous specimens. The bow terminates in a long, pointed nose and the hair is tightened, as in the previous specimen, by means of a block and screw. This is known as the *Corelli Model*.
- (g). BOW. Late 18th century model. Polished stick of wood, having a decided inward curve, with a short head, the hair tightened as in the previous specimen. This is known as the *Tourte Model*, and shows how, in the process of development, the bow has assumed a shape entirely the reverse of the original form, the curve now being inward instead of outward. By means of this inward curve the power of tightening the hair is greatly increased.

CASE 81.

(West Wall.)

2232. VIOLIN CASE. Black wood with curved outline and moulded back to fit the instrument, the sides and cover ornamented with carved scroll-work and foliage. Italy. 19th Century. Maker, Gaspar Otto Michele.

Length, 2 feet 7 inches. Width, 10½ inches. Depth, 4 inches.
From the Collection of Count Valdrighi, Modena.

GALLERY 27. CENTRAL CASE.

The following models are described under the same Class and placed with the examples which they illustrate.

1925. MODEL OF SPINET ACTION. For example employing this mechanism see No. 1209, page 85.
1928. MODEL OF HARPSICHORD ACTION. For example employing this mechanism see No. 1222, page 87.
2401. MODEL OF CLAVICYTHERIUM ACTION. For example employing this mechanism see No. 1224, page 87.

GALLERY 28. CENTRAL CASE.

The following models, with exception of No. 1924, are described under the same Class and placed with the examples which they illustrate.

1926. MODEL OF CLAVICHORD ACTION. For example employing this mechanism see No. 1207, page 90.
1927. MODEL OF ACTION, Primitive Viennese Method. For example employing this mechanism see No. 1197, page 93.
1923. MODEL OF ACTION, Viennese Method. For example employing this mechanism see No. 1214, page 94.
1924. MODEL OF REPETITION ACTION, Steinway Grand.

CLASS V. MUSICAL ACCESSORIES.**II. PERTAINING TO WIND INSTRUMENTS.****GALLERY 26. CASE 59.****(East Wall.)****1857.¹ COLLECTION OF BEATING REEDS.**

- (a). SECTION OF BAMBOO from which reeds are cut.
- (b). SINGLE BEATING REEDS cut in the side of the tubing, as used in the *Arghoul* and *Zummarah* of the Orient, in the ancient *Pibgorn*, and also employed in the modern Bagpipe.
- (c). SINGLE BEATING REEDS as employed in the Clarinet and Saxophone.
- (d). DOUBLE BEATING REEDS as employed in the modern Oboe and Bassoon, and also found in the Chinese *Sona* and *Kuan-tzu*, the Japanese *Hitschiriki* and the *Zourna* of Persia and Arabia.

The principle of beating reeds will also be found in an early stage of development, in the whistles of the Indians of British Columbia.

CENTRAL CASE.

1922. ENLARGED MODEL OF THE FREE REED, showing action of the vibrating tongue. Presented by Messrs. Mason & Hamlin. U. S. A.

Length, 1 foot 7 inches. Height, 13 inches.

GALLERY 25. CASE 99.**(North Wall.)**

- 2542.² PISTON VALVE ACTION. Cross section showing mechanism. For example in which this mechanism is employed see No. 2347, Case 99, page 189.

¹ See Preface to Wind Instruments, "Section B, Reeds," page 102.

² See Preface to Wind Instruments, "Section C, Cup Mouthpieces,"

(5) The Valve Principle, page 106.

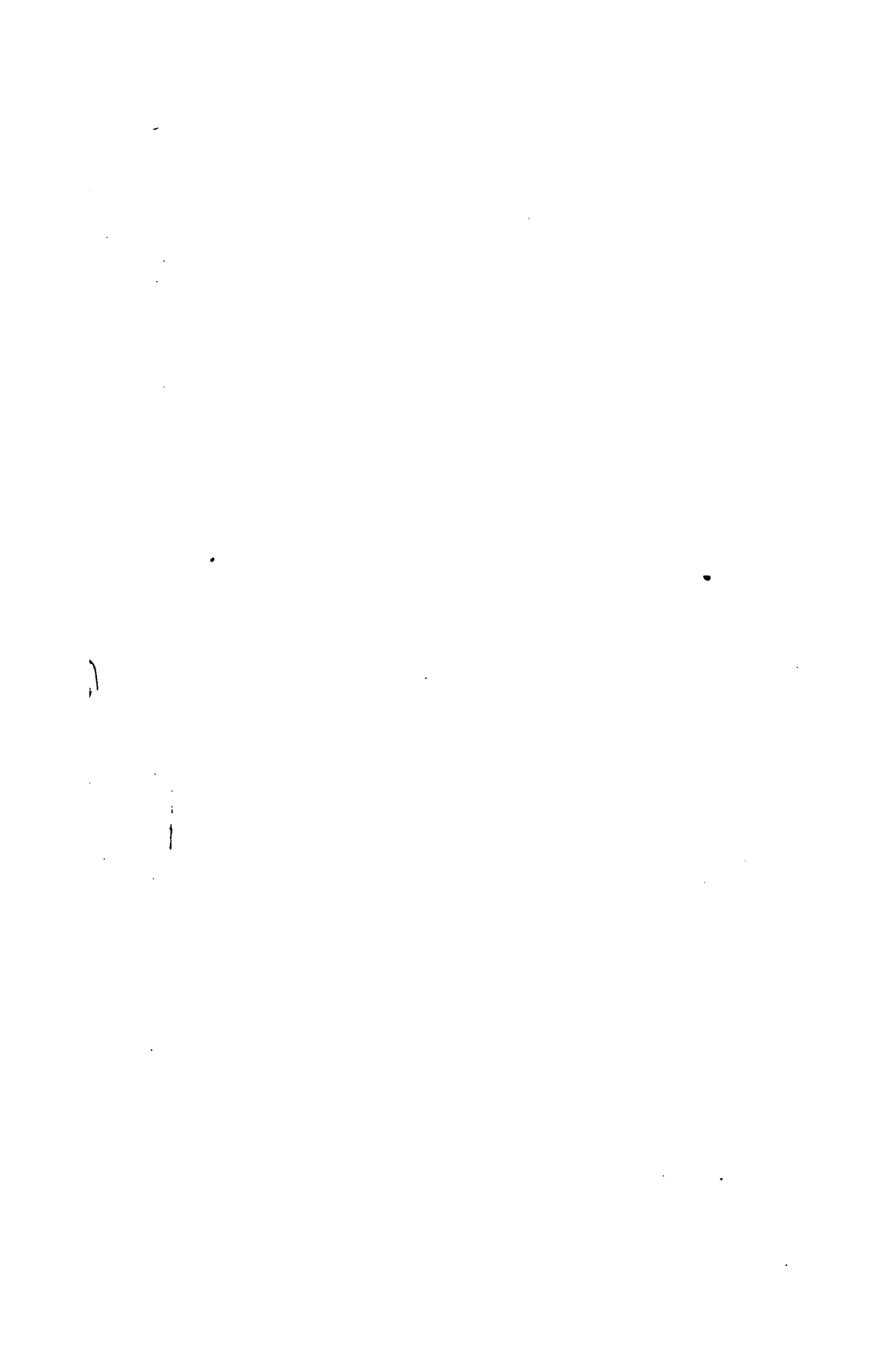
2541. PUMP VALVE ACTION. Cross section showing mechanism. For examples in which this mechanism is employed see Case 102 a, page 193.
2540. ROTARY VALVE ACTION. Cross section showing mechanism. For examples in which this mechanism is employed see Case 102, page 192.
2361. CYLINDRICAL TUBE, with short conical bell, illustrating the bore of the Trumpet and Trombone.
2362. CONICAL TUBE, enlarging to the bell, showing the bore of the Bugle and Horn.
2569. CORNET MUTE. To be inserted into the bell of an instrument to modify the tone.

OVER CASE 99 a.

2366. SPEAKING TRUMPET. A long, conical brass tube with wide mouthpiece for speaking purposes. Italy. 18th Century.
Length, 7 feet 4 inches.
2394. SPEAKING TRUMPET. A widely conical tube of brass, with large mouthpiece. Germany. Early 19th Century.
Length, 3 feet 11 inches.
1627. SPEAKING TRUMPET. A short, conical tube of brass, with wide bell and enlarged mouthpiece. France. 19th Century.
Length, 1 foot 11 inches.
1813. SPEAKING TRUMPET, as used in the Fire Brigade. A short, conical tube of white metal, with enlarged mouthpiece, ornamented with scroll device and leaf pattern decorated with ornamental rim moulding. U. S. A., 19th Century.
Length, 1 foot 5 inches.

CASE 109 a.

2428. COLLECTION OF CUP MOUTHPIECES used during the last Century.



CLASS V. MUSICAL ACCESSORIES.

III. MISCELLANEOUS.**GALLERY 25. NORTH OF CENTRAL CASE.**

2657. CHRONOLOGICAL CHARTS showing the development of musical instruments, with illustrations copied from the works of mediæval writers on musical subjects, sculpture, etc. Reproduced by permission of the Director of the Germanischen National Museum, Nuremberg.

CENTRAL CASE.

2514. MISSAL. Book of Offices for Saints' Days. Square black notes on red lines. Large, hand-painted initials. Bound in boards covered with leather and ornamented with large brass mountings. Spain. 16th Century.

CASE 109.

2520. MISSAL. Office for Holy Week, printed at Salamanca, Spain, by the successors of Matthias Gast, 1582. Music, black square notes on red lines, with initial letters in red ink. This Missal was obtained in Mexico.
2519. "THE EASY INSTRUCTOR," by William Little, Philadelphia, 1798. An early singing book.
2518. "HARMONIC COMPANION." An instruction book arranged on a new plan of musical notation, somewhat similar to the later tonic sol-fa. c. 1800.
2517. "PRENTISS' PRECEPTOR FOR THE TENOR AND BASS TROMBONES." Boston, 1837.

2515. SPECIMEN OF FRÈNCH DANCE MUSIC, being
the air and figure for "La Muszette à deux." Early 18th Century.
2592. "METHOD FOR THE HARMONIFLUTE," by
Mayer Marix. Paris. Early 19th Century.
2784. "REPOSITORY OF SACRED MUSIC," by John
Wyeth. Harrisburg, Pa. 1810.

PORTRAITS OF MUSICIANS¹
FROM 1450 TO 1900.
COMPOSERS, PERFORMERS AND WRITERS
ON MUSIC.

CHRONOLOGICAL LIST.

FRAME 1.

Number.	Dates.
1. JOSQUIN DESPRÉS.....	1450(?) - 1521
2. MARTIN LUTHER.....	1483-1546
3. GIOVANNI PIERLUIGI DA PALESTRINA....	1514(?) - 1594
4. HANS GERLE.....	died 1570
5. CRISTOFERO MORALES.....	date of portrait 1544
6. CLAUDE GOUDIMEL ²	1505(?) - 1572
7, 8, 9. ORLANDO DI LASSO.....	1520-1594
10. MELCHIOR NEUSIEDLER.....	died 1590
11. PHILIPPE DE MONTE.....	1521-1603
12. BAPTISTA SICULUS CITHA.....	16th Century
13. WILLIAM HEYTHER.....	died 1627
14. GUILLAUME COSTELEY.....	1531-1606
15. SETHUS CALVISIUS	1556-1615
16. ADAM GUMPELZHAIMER	1559-1625
17. HANS LEONHARD VON HASLER.....	1564-1612(?)
18. GEORG HAGER.....	16th Century

FRAME 2.

19. JEAN BAPTISTE BESARD.....	born 1576(?)
20. JOHANN STADEN.....	1581-1634
21. MARIN MERSENNE.....	1588-1648
22. PAOLO AGOSTINI.....	1593-1629
23. JOHN HILTON.....	died 1657
24. MARCELLUS OF PROVENCE.....	date of portrait 1623
25. HEINRICH SCHEIDEMANN.....	1596(?) - 1663

¹ Brief biographical sketches of these musicians will soon be published in a separate handbook.

² A doubt exists as to whether this is a portrait of Goudimel.

Number.	Dates.
26. JACOB GOUTERO.....	16th Century
27. FRANCESCO FOGGIA.....	1604-1688
28. NICHOLAS SABOLY.....	born 1614
29. CORNELIO ———	17th Century
30. FRANCESCA CORBETTA.....	1630-1700
31. JOHN GAMBLE.....	17th Century
32. R. KEUCHENIUS	17th Century

FRAME 3.

33, 34, 35. JEAN BAPTISTE LULLY.....	1633-1687
36. JEAN ANTOINE MANARA.....	born 1638
37. { NICOLAUS ROSEN.	
{ JOHANN DANIEL ROSE.....	date of portrait 1679
38. JOHN BLOW.....	1648-1708
39. NICHOLAS COSIMI	born about 1650
40. JEAN FRANÇOIS LALOUETTE.....	1651-1728
41, 42. ARCANGELO CORELLI.....	1653-1713
43. AGOSTINO STEFFANI.....	1655-1730
44. GABRIEL DESLONDES.....	born 1654
45, 46. HENRY PURCELL.....	1658-1695
47. SEBASTIAN DE BROSSARD.....	1660-1730

FRAME 4.

48. ANDRÉ CAMPRA.....	1660-1744
49. JOSEPHUS MEYER.....	1661-1732
50. GOTTFRIED REICHE.....	born 1667
51. JOHN CHRISTOPHER PEPUSCH.....	1667-1752
52, 53. FRANCOIS COUPERIN.....	1668-1733
54. GABRIEL VINCENT THEVENARD.....	1669-1741
55. RICHARD LEVERIDGE.....	1670-1758
56. LOUIS MARCHAND.....	1671-1732
57. DOMENICO SCARLATTI.....	1683-1757
58, 59, 60. JEAN PHILIPPE RAMEAU.....	1683-1764
61. ALESSANDRO MARCELLUS.....	1684-1750
62, 63, 64. GEORG FRIEDRICH HÄNDEL.....	1684-1759

FRAME 5.

65, 66, 67. JOHANN SEBASTIAN BACH.....	1685-1750
68. HENRY NEEDLER.....	1685-1760
69. MICHEL MATHIEU	1689-1768
70. GIUSEPPE TARTINI.....	1692-1770
71. FAUSTINA HASSE.....	1693-1783

Number.	Dates.
72. ESPRIT JOSEPH ANTOINE BLANCHARD.....	1696-1770
73. ADAM FALKENHAGEN.....	1697-1761
74. JEAN MARIE LE CLAIR.....	1697-1764
75. PIETRO METASTASIO.....	1698-1782
76. ——— VOET.....	date uncertain
77. JOHANN ADOLPH HASSE.....	1699-1783

FRAME 6.

78. FRANÇOIS REBEL.....	1701-1755
79. JEAN PIERRE GUIGNON.....	1702-1775
80. FRANZ TUMA.....	1704-1774
81, 82. CARLO BROSCHI.....	1705-1782
83. GIOVANNI BATTISTA MARTINI.....	1706-1784
84. GIOVANNI BATTISTA PERGOLESI.....	1708(?) - 1736(?)
85. FRANÇOIS XAVIER RICHTER.....	1709-1789
86. THOMAS AUGUSTIN ARNE.....	1710-1778
87. MICHEL CORRETTE.....	18th Century
88. DOMINUS JOSEPHUS HERRANDO....	date of portrait 1756

FRAME 7.

89. WILHELM FRIEDMAN BACH.....	1710-1784
90. JEAN JOSEPH CASSANÉA DE MONDONVILLE..	1711-1772
91. FELICE SALIMBENI.....	1712-1751
92. CHARLES JOHN STANLEY.....	1713-1786
93. JOHANN HEINRICH ROLLE.....	1714-1785
94, 95, 96. CHRISTOPH WILLIBALD, RITTER VON GLUCK	1714-1787
97. KARL PHILIPP EMANUEL BACH.....	1714-1788
98. LISABETTA DU PARC.....	date of portrait 1737
99. ANTON RAAFF.....	1714-1797
100. JOHN ALCOCK.....	1715-1806
101. FELICE DE GIARDINI.....	1716-1796

FRAME 8.

102. LEOPOLD MOZART.....	1719-1787
103. PIETRO NARDINI.....	1722-1793
104. GEORG BENDA.....	1722-1795
105. CARL FRIEDRICH ABEL.....	1725-1787
106. FRANÇOIS ANDRÉ DANICAN PHILIDOR.....	1726-1795
107. PIERRE GAVINIES.....	1726-1800
108. CHARLES BURNEY.....	1726-1814
109. MADAME ALLOU.....	18th Century

Number.	Dates.
110. NEIL GOW.....	1727-1807
111. JEAN GEORGES NOVERRE.....	1727-1810
112. NICOLA PICCINI	1728-1800
113. JOHANN ADAM HILLER.....	1728-1804
114. PIERRE ALEXANDRE MONSIGNY.....	1729-1817
115. JEAN JOSEPH RODOLPHE.....	1730-1812
116. CHARLES GAUZARGUES	died 1799

FRAME 9.

117. JEAN LOUIS LA RUETTE.....	1731-1792
118. CHRISTIAN CANNABICH	1731-1798
119. PIERRE AUGUSTIN CARON DE BEAU- MARCHAIS	1732-1799
120, 121, 122, 123, 124, 125. FRANZ JOSEPH HAYDN....	1732-1809
126. JOSEPH CAILLOT.....	1732-1816
127, 128. FRANÇOIS JOSEPH GOSSEC.....	1733-1829

FRAME 10.

129. JOHANN CHRISTIAN BACH.....	1735-1782
130. UNKNOWN MUSICIAN.....	18th Century
131. ANTONIO MARIA GASPARO SACCHINI.....	1735-1786
132. MICHAEL HAYDN.....	1737-1806
133. H. J. PERIGNON.....	18th Century
134. P. HUET.....	date of portrait 1789
135. LOUIS JOSEPH FRANCOEUR.....	1738-1804
136. ——— LANCEZ.....	18th Century
137. JOSEPH LEGROS.....	1739-1793
138. FRIEDRICH WILHELM RUST.....	1739-1796
139. WILLOUGHBY, EARL OF ABINGDON.....	1740-1799
140. SAMUEL ARNOLD.....	1740-1802
141. LUIGI BOCCHERINI.....	1740-1806

FRAME 11.

142. JEAN FRANÇOIS ESPIC DE LIROU.....	1740-1806
143. LOUIS AUGUSTIN RICHER.....	1740-1819
144. JOHANN ANDRE.....	1741-1799
145. J. A. LE JEUNE.....	18th-19th Century
146. JOHANN GOTTLIEB NAUMANN.....	1741-1801
147, 148, 149, 150. ANDRÉ ERNEST MODESTE GRÉTRY.....	1741-1813
151. TERESA BANDETTINI LUCCHESI.....	18th-19th Century
152. JEAN PAUL EGIDE MARTINI.....	1741-1816
153. ANN CATLEY.....	1745-1789

FRAME 12.

Number.	Dates.
154. ——— ST. GEORGES.....	1745-1799
155, 156. CHARLES DIBDIN.....	1745-1814
157. NICOLAS SEJAN.....	1745-1819
158. PIERRE NOËL GERVAIS.....	1746(?) -1794
159. JAMES HOOK.....	1746-1827
160. JOHANN WILHELM HÄSSLER.....	1747-1822
161, GEORG RITTER.....	1748-1808
162. GEORG JOSEPH VOGLER.....	1749-1814
163. HENRI GUERILLOT	1749-1805
164. HEINRICH CHRISTOPH KOCH.....	1749-1816
165. JEAN LOUIS DUPORT.....	1749-1819
166, 167. GERTRUDE ELISABETH MARA.....	1749-1833
168. MICHEL WOLDEMAR.....	1750-1816
169. JACOPO DAVID.....	1750-1830
170. SÉBASTIEN ERARD.....	1752-1831
171. MUZIO CLEMENTI.....	1752-1832

FRAME 13.

172, 173. NICOLAS DALAYRAC.....	1753-1809
174. LOUISE ROSALIE DUGAZON.....	1753-1821
175. GIOVANNI BATTISTA VIOTTI.....	1753-1824
176. JOHANN SCHENCK.....	1753-1836
177. DOMENICO CIMAROSA.....	1754-1801
178. VICENTE MARTIN Y SOLAR.....	1754-1810
179. LOUIS ARMAND CHARDINY.....	1755-1793
180. JEAN PIERRE SOLIÉ.....	1755-1812
181, 182. LUIGI MARCHESI.....	1755-1829
183, 184, 185. WOLFGANG AMADEUS MOZART.....	1756-1791

FRAME 14.

186, 187, 188. WOLFGANG AMADEUS MOZART.....	1756-1791
189. FAMILIE MOZART.....	
190. ANTOINETTE CECILE ST. HUBERTI.....	1756-1812
191. WILLIAM REEVE.....	1757-1815
192, 193. IGNAZ PLEYEL.....	1757-1831
194. ALESSANDRO ROLLA.....	1757-1841
195. NICOLAS LUPOT.....	1758-1824
196. MATHIEU FREDERIC BLASIUS.....	1758-1829

FRAME 15.

Number.	Dates.
197, 198. SIMON CHENARD.....	1758-1831
199. LISABETTA GAFFORINI.....	18th-19th Century
200. FRANZ KROMMER.....	1759-1831
201. CHARLES LOCHON.....	1760-1817
202, 203. MARIA LUIGI CARLO ZENOBI SALVATORE CHERUBINI	1760-1842
204. LOUISE GAUTHEROT	born 1761
205. JOHANN LUDWIG DUSSEK.....	1761-1812
206. JEAN BAPTISTE DANIEL AUBER.....	18th-19th Century
207, 208. ETIENNE HENRI MÉHUL.....	1763-1817

FRAME 16.

209. {	JOSEPH LANGE	1751-1827
	ALOYSIA LANGE	1763-1830
210.	JEAN FRANÇOIS LE SUEUR.....	1763-1837
211.	ADALBERT GYROWETZ.....	1763-1850
212.	CHARLES HENRI PLANTADE.....	1764-1839
213, 214.	DANIEL STEIBELT.....	1765-1823
215.	P. ALBERT BONNET.....	18th-19th Century
216.	FREDERIC DUVERNOY	1765-1838
217.	MARIE THERESE MAILLARD.....	1766-1818
218.	JOHN WALL CALLCOTT.....	1766-1821
219.	THOMAS DELCAMBRE.....	1766-1828
220.	RODOLPHE KREUTZER.....	1766-1831
221, 222.	HENRI MONTAN BERTON.....	1766-1842

FRAME 17.

223.	HENRI MONTAN BERTON.....	1766-1842
224.	GIROLAMO CRESCENTINI.....	1766-1846
225.	J. J. DE MOMIGNY.....	born 1766
226.	AUGUST EBERHARD MÜLLER.....	1767-1817
227.	AMÉLIE JULIE PIÉRIÉ-CANDEILLE.....	1767-1834
228.	GIUSEPPE AMBROGETTI.....	18th-19th Century
229.	TERESA STRINASACCHI.....	born 1768
230.	LOUIS PERSUIS	1769-1819
231.	CHARLES HAGUE.....	1769-1821
232.	JEAN BLAISE MARTIN.....	1769-1837
233.	JEAN ELLEVIOU.....	1769-1842

FRAME 18.

Number.	Dates.
234, 235, 236, 237, 238, 239, ¹ 240, 241. ¹ LUDWIG VAN BEETHOVEN	1770-1827
242. ANNA M. PELLEGRINI-CELONI.....	1770-1835
243, 244. FERDINAND PAER.....	1771-1839
245. MRS. DICKONS	1770(?) 1833
246. PIERRE MARIE FRANÇOIS DE SALES BAILLOT.....	1771-1842

FRAME 19.

247. JOHANN BAPTIST CRAMER.....	1771-1858
248. ALEXANDRE ETIENNE CHORON.....	1772-1834
249. JEAN BAPTISTE GAVAUDAN.....	1772-1840
250. NICOLA TACCHINARDI.....	1772-1859
251. JEAN BAPTISTE CARTIER.....	1772-1841
252. JACQUES PIERRE JOSEPH RODE.....	1773-1830
253. CHARLES SIMON CATEL.....	1773-1830
254. GIUSEPPINA GRASSINI.....	1773-1850
255, 256, 257. GASPARO LUIGI PACIFICO SPONTINI.....	1774-1851

FRAME 20.

258. EDMÉE SOPHIE GAIL.....	1775-1819
259, 260. J. J. IMBAULT.....	18th-19th Century
261. ANNE AIMÉE ARMAND.....	1774-1846
262, 263, 264, 265. FRANÇOIS ADRIEN BOIELDIEU....	1775-1834
266. JOHANN ANTON ANDRE.....	1775-1842
267. WILLIAM CROTCH.....	1775-1847
268. JOHANN NEPOMUK HUMMEL.....	1778-1837
269, 270. ANGELICA CATALANI.....	1779-1849
271. MARIANNE BARILLI.....	1780-1813

FRAME 21.

272. ALEXANDRINE CAROLINE BRANCHU.....	1780-1846
273. MADAME DE MONGERAULT.....	date of portrait 1820
274. CHARLES PHILIPPE LAFONT.....	1781-1839
275. GUILLAUME LOUIS WILHEM (PROPERLY BOC- QUILLON)	1781-1842
276. FRANÇOIS ANTOINE HABENECK.....	1781-1849
277. CHARLES SANVAGEOT.....	1781-1860
278. JOHN FIELD.....	1782-1837
279. ——— PRUDHOMME.....	18th-19th Century
280, 281, 282. NICCOLO PAGANINI.....	1782-1840

¹ Caricature.

FRAME 22.

Number.	Dates.
283. NICCOLO PAGANINI.....	1782-1840
284. CONRADIN KREUTZER.....	1782-1849
285, 286, 287. DANIEL FRANÇOIS ESPRIT AUBER....	1782-1871
288. ROOM IN HOUSE OF D. F. E. AUBER, RUE ST. LAZARE, NO. 50.	
289. FILIPPO GALLI.....	1783-1853
290. FERDINAND RIES.....	1784-1838
291. GEORGE ONSLOW.....	1784-1852
292. FRANÇOIS HENRI JOSEPH BLAZE.....	1784-1857
293. LOUIS SPOHR.....	1784-1859

FRAME 23.

294, 295. LOUIS SPOHR.....	1784-1859
296. FRANÇOIS JOSEPH FETIS.....	1784-1871
297. MADAME DURET ST. AUBIN.....	born 1785
298. HENRI VALENTINO	1785-1865
299, 300. CARL MARIA FRIEDRICH ERNST, FREI- HERR VON WEBER.....	1786-1826
301. FRIEDRICH KUHLAU.....	1786-1832
302. JULIE HALLIGNE BOULANGER.....	1786-1850
303. SIR HENRY ROWLEY BISHOP.....	1786-1855
304. FRIEDRICH WILHELM MICHAEL KALKBREN- NER	1788-1840
305. JOHANN PETER PIXIS.....	1788-1874
306. MADAME MERLIN.....	born 1789

FRAME 24.

307. ROBERT NICOLAS CHARLES BOCHSA.....	1789-1856
308. DOMENICO DONZELLI.....	1790-1873
309. CARL CZERNY.....	1791-1857
310, 311, 312. GIACOMO MEYERBEER.....	1791-1864
313, 314. LOUIS JOSEPH FERDINAND HÉROLD.....	1792-1833
315. ANTON BERNHARD FÜRSTENAU.....	1792-1852
316. FRANZ WILD.....	1792-1860
317, 318, 319, 320. GIOACHINO ANTONIO ROSSINI....	1792-1868

FRAME 25.

321. LOUIS FRANÇOIS PHILIPPE DROUET.....	1791-1873
322. JOSEPHINE MAINVILLE FODOR.....	born 1793
323. JOSEPH MELCHIOR GOMIS.....	1793-1836

Number.	Dates.
324. LUIGI LABLACHE.....	1794-1858
325. IGNAZ MOSCHELES.....	1794-1870
326. GIOVANNI BATTISTA RUBINI.....	1795-1854
327. BENOIT MOZIN	died 1857
328. HEINRICH AUGUST MARSCHNER.....	1795-1861
329. JOHANN CARL GOTTFRIED LOEWE.....	1796-1869
330. FRANZ PETER SCHUBERT.....	1797-1828
331. GAETANO DONIZETTI.....	1797-1848
332. FRANCESCO SAVERIO MERCADANTE.....	1797-1870
333. HENRI JÉRÔME BERTINI.....	1798-1876

FRAME 26.

334. CHRISTIAN AUGUST POHLENZ.....	1799-1843
335. 336. JACQUES FRANÇOIS FROMENTAL ELIE HALÉVY	1799-1862
337. LAURE CINTHIE DAMOREAU.....	1801-1863
338. VINCENZO BELLINI.....	1802-1835
339. CHARLES AUGUSTE DE BERIOT.....	1802-1870
340. ADOLPHE NOURRIT.....	1802-1839
341. WILHELM BERNHARD MOLIQUE.....	1802-1869
342. JACQUES SCHMITT.....	1803-1853
343. ADOLPHE CHARLES ADAM.....	1803-1856
344. 345. ¹ 346. HECTOR LOUIS BERLIOZ.....	1803-1869
347. FRANÇOIS LOUIS HIPPOLYTE MONPOU.....	1804-1841
348. SIR JULIUS BENEDICT.....	1804-1885
349. FRANZ LACHNER.....	1804-1890

FRAME 27.

350. HENRIETTE SONTAG.....	1805-1854
351. { WILHELM HENSEL....	1794-1851
{ FANNY CECILE HENSEL	1805-1847
352. THEODORE LABARRE.....	1805-1870
353. NAPOLEON HENRI REBER.....	1807-1880
354. MARIA FELICITÀ MALIBRAN.....	1808-1836
355. ALBERT GRISAR.....	1808-1869
356. MICHAEL WILLIAM BALFE.....	1808-1870
357. AUGUSTE FRANCHOMME.....	1808-1884
358. 359. FELIX MENDELSSOHN-BARTHOLDY.....	1809-1847
360. 361. FRANÇOIS FREDERIC CHOPIN.....	1809-1849
362. ROBERT ALEXANDER SCHUMANN.....	1810-1856

¹ Caricature.

FRAME 28.

Number.	Dates.
363, 364. FELICIEN CESAR DAVID.....	1810-1876
365. PAUL BARROILHET	1810-1871
366. OLE BORNEMANN BULL.....	1810-1880
367. GIUSEPPE MARIO.....	1810-1883
368. SIR MICHAEL COSTA.....	1810-1884
369. FERDINAND VON HILLER.....	1811-1885
370. GIULIA GRISI	1811-1869
371, 372. FRANZ LISZT.....	1811-1886
373. AMBROISE THOMAS.....	1811-1896
374. SIGISMOND THALBERG.....	1812-1871
375. FRIEDRICH VON FLOTOW.....	1812-1883
376. LAURO ROSSI.....	1812-1885
377. MARIE CORNÉLIE FALCON.....	1812-1897

FRAME 29.

378, 379. RICHARD WAGNER.....	1813-1883
380. GIUSEPPE VERDI.....	1813-1901
381. THEODOR DÖHLER.....	1814-1856
382. HEINRICH WILHELM ERNST.....	1814-1865
383. ADOLF VON HENSELT.....	1814-1889
384. ADOLPHE SAX	1814-1894
385. STEPHEN HELLER.....	1815-1888
386. ROBERT FRANZ.....	1815-1892
387. SIR WILLIAM STERNDALÉ BENNETT.....	1816-1875
388. FRANÇOIS EMANUEL JOSEPH BAZIN.....	1816-1878
389. NIELS WILHELM GADE.....	1817-1890
390. HENRY CHARLES LITOFF.....	1818-1891

FRAME 30.

391, 392. CHARLES FRANÇOIS GOUNOD.....	1818-1893
393. JACQUES OFFENBACH.....	1819-1880
394. FRANZ ABT.....	1819-1885
395. SIR CHARLES HALLE.....	1819-1895
396. CLARA JOSEPHINE SCHUMANN.....	1819-1896
397. HENRI VIEUXTEMPS.....	1820-1881
398. JENNY LIND.....	1820-1887
399. JOSEPH JOACHIM RAFF.....	1822-1882
400. PETER CORNELIUS.....	1824-1874

Number.	Dates.
401. CARL HEINRICH CARSTEN REINECKE.....	1824-
402, 403. ANTON GREGOROVITCH RUBINSTEIN.....	1830-1894
404. HANS GUIDO VON BÜLOW.....	1830-1894
405. JOSEPH JOACHIM.....	1831-

FRAME 31.

406. CARL GOLDMARK.....	1832-
407. JOHANNES BRAHMS.....	1833-1897
408. CHARLES CAMILLE SAINT-SAËNS.....	1835-
409. CLEMENT PHILIBERT LEO DELIBES.....	1836-1891
410, 411. GEORGES BIZET.....	1838-1875
412. PETER ILTITSCH TSCHAIKOWSKY.....	1840-1893
413. SIR JOHN STAINER.....	1840-1901
414. KARL TAUSIG.....	1841-1871
415. ANTON DVORÁK.....	1841-
416. SIR ARTHUR SULLIVAN.....	1842-1900
417. ARRIGO BOITO.....	1842-
418. JULES EMILE FREDERIC MASSENET.....	1842-
419. CHRISTINE NILSSON.....	1843-
420. ADELINA PATTI.....	1843-

FRAME 32.

421. EDVARD HAGERUP GRIEG.....	1843-
422. IGNACE JAN PADEREWSKI.....	1859-
423. RICHARD STRAUSS.....	1864-

IN SEPARATE FRAMES.

Central Case.

424. IGNATIUS FIORILLO.....	1715-1787
425. CHARLES MOUTON.....	17th Century
426. ANTONIUS STRADIVARIUS.....	1649-1737
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